BOSTON PUBLIC LIBRARY
3 9999 06583 171 9

ANNUAL REPORT

OF THE

TRANSIT DEPARTMENT

OF THE

CITY OF BOSTON

1926

№ *6355.5A

1926

THE TRVSTEES OF THE PVBLIC LIBRARY
LVX
OMNIVM
CIVIVM
OF THE CITY OF BOSTON
1852 1878

GIVEN BY

Carnegie Library of Pittsburgh

DEPARTMENT OF CITY TRANSIT
24 [illegible]
13

COMPLIMENTS OF

TRANSIT DEPARTMENT—CITY OF BOSTON

THOMAS F. SULLIVAN, *Chairman,*
NATHAN A. HELLER,
JAMES B. NOYES,
Commissioners.

Digitized by the Internet Archive
in 2010 with funding from
Boston Public Library

http://www.archive.org/details/annualreport1926trans

REPORT

OF THE

TRANSIT DEPARTMENT

FOR THE

YEAR ENDING DECEMBER 31, 1926

CITY OF BOSTON
PRINTING DEPARTMENT
1927

BOSTON
PUBLIC
LIBRARY

ment, not including rolling stock. None of the old railroad material was suitable for a modern electric railway and even the right of way required many additions, changes and alterations to adapt it for the new service. Among the principal construction changes was the abolition of five grade crossings by lowering the grade of the road bed between Geneva Avenue and Ashmont, the reconstruction and alteration of drainage and conduit systems, sewers, retaining walls, and the location and construction of new stations with facilities for the interchange of passengers between the rapid transit lines and street cars and buses. New signals, rails, ties, ballast, etc., were required for the safe and economical operation of an electric rapid transit line.

Some of the former passengers using the steam railroad desired the continuance of railroad operation between Harrison Square and Shawmut Junction, during the construction of the new road. To give such a service would have been difficult, dangerous and expensive. It would involve the tearing down and removal of many dwellings, the dispossession of about fifty families, and the slicing of several hundred parcels of abutting land. This would increase the cost over a million dollars and delay the entire project over a year.

Counts made in July, 1926, showed the average daily number of passengers to be affected by the discontinuance of service to be but 789 or less than 100 per train. Investigation of transportation conditions brought out the fact that there were no points in this district that did not have reasonable access to street car or bus service.

Against the desire of less than 800 passengers for a temporary railroad service was placed the urgent need of promptly supplying rapid transit facilities for the 55,000 passengers passing twice each day through Andrew Station.

Arrangements were made by the New York, New Haven & Hartford Railroad Company for abandoning service from Fields Corner, Shawmut, Ashmont and Cedar Grove stations, and for substitute service from Mattapan, Central Avenue, and Milton Stations to Boston by way of Neponset Junction.

On July 8 a petition was filed with the Department of Public Utilities for approval of these changes. On August 3 a public hearing was given and on August 23 the petition was approved. On September 4 the railroad service between Cedar Grove and Fields Corner was discontinued.

In the meantime plans had been drawn, contracts let and orders placed, and on the very day railroad operation ceased the Department began the work of reconstruction.

Section One.

This section runs from Section K, Dorchester Tunnel, to Harrison Square, a distance of about one and three-quarters miles. In 1925 a contract was let to M. F. Gaddis for its construction and arrangements were made with the New York, New Haven & Hartford Railroad Company to relocate its main line tracks and freight sidings.

During the current year work on this section has been actively carried on. The sub-grade has been placed for the roadbed and the highway bridges at Columbia Road and Savin Hill Avenue have been under reconstruction.

The Savin Hill Avenue bridge, being the only outlet for this district, could not be closed to traffic at any time. The work was so arranged that the bridge has been kept open for traffic without interruption. To handle the street traffic safely a tower was erected in the middle of the temporary bridge, red and green control lights installed, and a police officer placed in charge. The old railroad stations having been removed, a temporary station was built some distance south of Savin Hill Avenue to take care of passengers.

The shifting over of the steam railroad tracks was completed by the Railroad Company in cooperation with the contractor for Section 1.

Bids for the construction of the entrance and exit building for the station at Columbia Road, including the stairway, platform canopy and waiting room were received on September 14. The contract was awarded to J. P. Foley & Sons, the lower bidder. The Consulting Architect is William D. Austin.

On October 5 bids were received for the construction of Harrison substation. The work consists of the building of a steel frame brick and concrete sub-power station, also a concrete platform, wire fence, etc. The contract was awarded to John P. Curley, the lowest of thirteen bidders.

On April 27 bids were received for furnishing certain electrical equipment for the Harrison substation. After careful analysis of the bids, on June 24 the contract was awarded to the General Electric Company, the lower bidder. This equipment is to be used for an automatic power substation with remote supervisory control and will furnish power for part of the Dorchester Rapid Transit line.

Additional apparatus to supply power for surface lines is being installed in this station by the Boston Elevated Railway Company.

Section Two.

This section is located on the Shawmut Branch between Clayton Street and Geneva Avenue and is about one-half mile long. It includes the construction of a roadbed, station platforms, approaches and passageways, installing concrete floors on the existing bridges, conduits, manholes, etc., connecting at Harrison Square with Section 1. It includes the site of the Fields Corner Station.

Bids were received on August 17 and the contract was awarded to A. G. Tomasello & Son, Inc., the lowest bidder. Work was begun on August 30, 1926, and is now about 65 per cent completed.

Section Three.

This section is located between Geneva Avenue and Peabody Square. It is about one mile long, of which about 4,100 feet is to be a covered section. The roadbed is to be lowered to a maximum depth of eighteen feet in order to abolish the existing grade crossings at Park Street, Melville Avenue, Mather Street, Centre Street and Welles Avenue.

Bids for this work were received on August 31 and the contract was awarded to the C & R Construction Company, the lowest bidder. Work was begun on September 13, 1926, and is now about 12 per cent completed.

The lowering of the tracks would make a deep cut and if this were left open the right of way would have to be materially widened to provide space for plowed snow. It was found that roofing the tracks would add but little to the cost of construction and would present many advantages in operation. As the property adjoining this section is almost entirely residential, the substitution of a covered structure for an open cut section including the abolition of the five grade crossing would eliminate the noise and dirt incidental to operation. Accordingly, with the approval of the Boston Elevated Railway Company the plans were altered to provide for roofing over the section from Park Street to Centre Street.

In connection with the discussion as to a street over this section the following letter explains the position of the Department:

November 19, 1926.

HONORABLE MALCOLM E. NICHOLS,
Mayor of Boston,
City Hall, Boston, Mass.

DEAR SIR,— We return herewith order of the City Council as follows:

> "*Ordered,* That the Transit Commission be requested to furnish the City Council with estimates of cost of construction and time required to make a boulevard street for pleasure vehicles over the tunnel and area way of the Shawmut Branch Extension of the Cambridge Tunnel, between Park Street, Dorchester and Centre Street, Dorchester."

The plans under which this Department is working on the Shawmut Branch, between Park and Centre Streets, Dorchester, provide for a covered section similar to a subway, but the roof is not designed to carry traffic. A contract for construction has been let and is now in progress in accordance with the plans finally agreed upon by the Boston Elevated Railway Company, the lessee of the Dorchester Rapid Transit line, and any changes such as would be necessary in the design of this structure to carry traffic on its roof would not only nullify our present contracts, but would seriously delay the entire rapid transit extension.

There are ample streets paralleling the Shawmut Branch and within a short distance therefrom to take care of all of the traffic in this vicinity as long as the district remains a residential section. We can see no advantage, even if some method were found to finance this project, in providing a "boulevard street" with nothing but rear yards abutting thereon. Unless additional property was taken there would be many places within the area specified where the width of the " boulevard " including sidewalks would not be forty feet.

If traffic conditions in that vicinity should reach a stage where additional traffic ways are necessary, it would be a comparatively simple proposition to construct a real thoroughfare paralleling the Shawmut Branch through existing public ways and private property at much less expense.

Yours very truly,

CITY OF BOSTON TRANSIT DEPARTMENT,
(Signed) T. F. SULLIVAN,
Chairman.

Enclosure.

REAL ESTATE.

During the year the Department took by eminent domain fifty-three parcels of real estate, of which fifty-one were taken in fee and two in easement. Settlement has been made for nineteen takings, and one parcel, no longer needed for transit purposes, has been sold.

DORCHESTER TUNNEL, SECTION K.

The laying of the permanent paving on Boston Street and on Dorchester Avenue practically completed the work of the Department in connection with this section. The equipment with tracks, ballasts, lights, signals, etc., for this section, under the provisions of the act, must be furnished by the Boston Elevated Railway Company.

EXTENSION OF BOYLSTON, STREET SUBWAY.

The extension of the Boylston Street subway was authorized under chapter 341 of the acts of 1925. The Department promptly sent a study and a draft of a contract to the Boston Elevated Railway Company. No action thereon was taken by the Railway Company in the year 1925.

Another year has passed and still the Railway Company has failed to take the necessary action to authorize the Department to proceed with the work at Governor Square.

Much valuable time has elapsed in the discussion and consideration of alternative schemes to remedy traffic congestion, vehicular, pedestrian, and street railway, at this focal point. Most of these schemes relate primarily to the re-routing of vehicular traffic. None of them is more than a superficial palliative of the problem as it affects the operation of the transit system. One of the proposals called for the construction of an elevated structure along Commonwealth Avenue, thence to and along Blandford Street to Beacon Street. This proposal has met with general disapproval, for a number of valid reasons: its impracticability, the disproportionate expense involved, the unsightly effect of the structure, and its running counter to the modern trend of depressing rather than elevating rapid transit facilities.

The only practicable method of solving the problem is the extension of the Boylston Street subway. It is a project of imperative importance. With rapidly increasing population in the territory served by this subway and consequent expansion of street traffic contributory thereto, it is becoming increasingly difficult to provide adequate rapid transit service. The delays occasioned at Governor Square are constant, vexatious, and costly, and the effects are felt not only at this point but throughout the subway system. The extension of the subway is urgently needed.

The Railway Company notwithstanding its recognition of these facts has withheld approval of the extension upon financial grounds. The Company's position seems to be that it cannot afford to expend annually the sum of $250,000, which is the estimated annual rental of the extension, because of the fear of incurring an annual deficit in the operation of the road.

The Department is of the opinion that this fear is not well founded. Entirely apart from the likelihood of increased revenue due to increased traffic, there can be little question that the annual rental charge will for the most part be absorbed by various savings, such as (1) a saving in the cost of maintenance of track and road bed, (2) a saving by eliminating the item of snow removal, (3) a saving in damages for accidents, and (4) a saving due to the greater amount of business per car per time unit.

PURCHASE OF ELEVATED STRUCTURES.

Chapter 44 of the Resolves of 1926 provided for the appointment of a special unpaid commission, consisting of one representative each from the Department of Public Utilities, the Transit Department and the Board of Trustees of the Boston Elevated Railway Company, to make an investigation relative to the purchase by the City of the elevated structures used by the Boston Elevated Railway Company within the city, and to consider ways and means of financing any action recommended.

This Commission, consisting of the Chairman of the Department of Public Utilities, the Chairman of the Transit Department, and Stanley R. Miller for the Trustees, on December 1, 1926, filed a report with the General Court, which has been published as Senate Document No. 7, 1927, recommending the acquisition by the State of the Elevated structures. (See Appendix A).

CHARLES STREET STATION.

The Transit Department at the date of the last report was engaged in making detailed plans and specifications for the Charles Street station of the Cambridge subway under the direction of the Department of Public Utilities. As the appropriation by the General Court was insufficient to permit the construction of the station along lines satisfactory to the lessee, the Boston Elevated Railway Company, by direction of the Department of Public Utilities the Transit Department ceased work on this project.

HYDE PARK STREET RAILWAY.

The Boston Elevated Railway Company has extended its tracks a short distance south across River Street, thus improving the traffic situation at Cleary Square, Hyde Park.

The Department has leased the old power house on Bridge Street for a term of five years to Vincent LoSciuto.

TREMONT STREET SUBWAY.

In connection with the widening of Court and Cambridge streets plans have been drawn for new stairway coverings at the easterly end of Scollay Square and submitted to the Boston Elevated Railway Company for its approval.

The Fire Department of the City has abandoned the idea of using the triangle bounded by Tremont Street, Broadway and Shawmut Avenue as a site for a central fire station.

DIVISION OF METROPOLITAN PLANNING.

Chapter 399 of the acts of 1923 establishing the Division of Metropolitan Planning within the Metropolitan District Commission, provided that, of the seven commissioners in charge, one should be an officer of the Transit Department to be designated from time to time by the Chairman thereof. In accordance therewith Commissioner James B. Noyes has been so designated in place of former Commissioner Francis E. Slattery.

ORGANIZATION OF DEPARTMENT.

On February 10, 1926, Louis K. Rourke resigned as Transit Commissioner, his Honor the Mayor having appointed Mr. Rourke as Building Commissioner. He was appointed as

Acting Transit Commissioner the same day and served until March 17, when Nathan A. Heller qualified as Transit Commissioner.

On March 24, 1926, Francis E. Slattery resigned as Transit Commissioner, having been appointed Chairman of the Schoolhouse Department. He was appointed Acting Transit Commissioner the same day and served until July 6, 1926, when James B. Noyes qualified as Transit Commissioner. Mr. Noyes was a member of the Boston Transit Commission from 1909 until its termination in 1918.

SINKING FUNDS.

The following is the condition of the debt and of the sinking funds for the various divisions of the work of the department at the date of this report, as stated by the City Treasurer.

SUBWAY (INCLUDING ALTERATIONS).

(Debt, $4,416,000, outside debt limit.)

Amount of fund January 1, 1926		$2,887,369 31
Received:		
Interest on bank deposits January 1, 1926, to date	$1,540 58	
Interest on investments January 1, 1926, to date	111,720 17	
Appreciation of investments January 1, 1926, to date	2,000 00	
Revenue, etc., January 1, 1926	11,579 00	
		126,839 75
		$3,014,209 06
Paid:		
Interest on investments purchased January 1, 1926, to date		153 33
		$3,014,055 73

CHARLESTOWN BRIDGE, NO. 1.

(Debt, $750,000, inside debt limit.)

Amount of fund January 1, 1926		$459,249 77
Received:		
Interest on bank deposits January 1, 1926, to date	$613 56	
Interest on investments January 1, 1926, to date	18,490 00	
Carried forward	$19,103 56	$459,249 77

Brought forward	$19,103 56	$459,249 77
Appreciation of investments January 1, 1926, to date	528 20	
Appropriation for debt	4,200 00	
		23,831 76
		$483,081 53
Paid:		
Interest on investments purchased January 1, 1926, to date		216 67
		$482,864 86

Charlestown Bridge, No. 2.

(Debt, $665,000, outside debt limit.)

Amount of fund January 1, 1926		$518,365 83
Received:		
Interest on bank deposits January 1, 1926, to date	$1,139 90	
Interest on investments January 1, 1926, to date	20,430 00	
Revenue, etc., January 1, 1926, to date	8,624 97	
		30,194 87
		$548,560 70
Paid:		
Interest on investments purchased January 1, 1926, to date		133 33
		$548,427 37

Boston Tunnel and Subway.

(Debt, $8,394,700, outside debt limit.)

Amount of fund January 1, 1926		$2,881,679 92
Received:		
Interest on bank deposits January 1, 1926, to date	$1,395 64	
Interest on investments January 1, 1926, to date	114,379 67	
Revenue, etc., January 1, 1926, to date	68,578 00	
Bonus on exchange of securities January 1, 1926, to date	3,000 00	
		187,353 31
		$3,069,033 23
Paid:		
Interest on investments purchased January 1, 1926, to date	$215 83	
Premium on investments purchased January 1, 1926, to date	624 15	
		839 98
		$3,068,193 25

Rapid Transit — Cambridge Connection.

(Debt, $1,635,000, outside debt limit.)

Amount of fund January 1, 1926		$300,343 19
Received:		
Interest on bank deposits January 1, 1926, to date	$1,038 65	
Interest on investments January 1, 1926, to date	8,995 92	
Revenue, etc., January 1, 1926, to date	15,737 00	
Bonus on sale of securities January 1, 1926, to date	2,000 00	
		27,771 57
		$328,114 76
Paid:		
Interest on investments purchased January 1, 1926, to date	$230 21	
Premium on investments purchased January 1, 1926, to date	191 75	
		421 96
		$327,692 80

Boylston Street Subway.

(Debt, $5,395,000, outside debt limit.)

Amount of fund January 1, 1926		$59,866 99
Received:		
Interest on bank deposits January 1, 1926, to date	$553 92	
Interest on investments January 1, 1926, to date	1,637 00	
Revenue, etc., January 1, 1926, to date	15,937 80	
		18,128 72
		$77,995 71

East Boston Tunnel Extension.

(Debt, $2,500,000, outside debt limit.)

Amount of fund January 1, 1926		$189,499 85
Received:		
Interest on bank deposits January 1, 1926, to date	$466 83	
Interest on investments January 1, 1926, to date	7,435 00	
Revenue, etc., January 1, 1926, to date	5,009 55	
		12,911 38
		$202,411 23

DORCHESTER TUNNEL.

(Debt, $12,050,000, outside debt limit.)

Amount of fund January 1, 1926		$287,085 93
Received:		
Interest on bank deposits January 1, 1926, to date	$1,250 86	
Interest on investments January 1, 1926, to date	10,396 58	
Revenue, etc., January 1, 1926, to date	65,120 68	
Bonus on exchange of securities January 1, 1926, to date	4,000 00	
		80,768 12
		$367,854 05
Paid:		
Interest on investments purchased January 1, 1926, to date	$230 21	
Premium on investments purchased January 1, 1926, to date	191 75	
		421 96
		$367,432 09

ARLINGTON STATION.

(Debt, $1,235,000, outside debt limit.)

Amount of fund January 1, 1926		$9,174 63
Received:		
Interest on bank deposits January 1, 1926, to date	$42 97	
Interest on investments January 1, 1926, to date	320 00	
		362 97
		$9,537 60

EAST BOSTON TUNNEL.

(Debt, $3,334,000, outside debt limit.)

Amount of fund January 1, 1926		$1,661,340 72
Received:		
Interest on bank deposits January 1, 1926, to date	$1,496 20	
Interest on investments January 1, 1926, to date	58,946 25	
Revenue, etc., January 1, 1926, to date	6,847 00	
Appreciation of investments January 1, 1926, to date	6,209 60	
Bonus on exchange of securities January 1, 1926, to date	22,000 00	
		95,499 05
Carried forward		$1,756,839 77

Brought forward		$1,756,839 77
Paid:		
Interest on investments purchased January 1, 1926, to date		1,065 55
		$1,755,774 22

HYDE PARK STREET RAILWAY.

(Debt, $317,000, outside debt limit.)

Amount of fund January 1, 1926		$16,461 11
Received:		
Interest on bank deposits January 1, 1926, to date	$125 36	
Interest on investments January 1, 1926, to date	570 00	
Appropriation for debt January 1, 1926, to date	8,261 00	
		8,956 36
		$25,417 47

EAST BOSTON TUNNEL ALTERATIONS.

(Debt, $3,900,000, outside debt limit.)

Amount of fund January 1, 1926		$40,981 79
Received:		
Interest on bank deposits January 1, 1926, to date	$418 40	
Interest on investments January 1, 1926, to date	845 00	
Revenue, etc., January 1, 1926, to date	952 81	
Appreciation of investments January 1, 1926, to date	1,381 50	
		3,597 71
		$44,579 50
Paid:		
Interest on investments purchased January 1, 1926, to date		265 42
		$44,314 08

DORCHESTER RAPID TRANSIT.

(Debt, $3,800,000, outside debt limit.)

(No fund.)

TREMONT STREET SUBWAY ALTERATIONS, ACTS 1924 — CHAPTER 120.

(Debt, $50,000, outside debt limit.)

(No fund.)

EAST BOSTON TUNNEL ALTERATIONS, ACTS 1924 — CHAPTER 120.

(Debt, $20,000, outside debt limit.)

(No fund.)

RENTAL BILLS RENDERED TO THE BOSTON ELEVATED RAILWAY COMPANY.

The following is a statement of the bills rendered for rental of the various tunnels and subways:

TREMONT STREET SUBWAY.

March 31, 1926:		
Net cost of subway	$4,133,928 26	
Rental for one quarter		$46,506 69
Alterations: net cost	242,673 93	
Rental for one quarter		2,730 08
June 30, 1926:		
Net cost of subway	4,133,942 72	
Rental for one quarter		46,506 86
Alterations: net cost	242,673 72	
Rental for one quarter		2,730 08
September 30, 1926:		
Net cost of subway	4,133,942 72	
Rental for one quarter		46,506 86
Alterations: net cost	242,673 93	
Rental for one quarter		2,730 08
December 31, 1926:		
Net cost of subway	4,133,942 72	
Rental for one quarter		46,506 86
Alterations: net cost	242,673 93	
Rental for one quarter		2,730 08
	Total	$196,947 59

WASHINGTON STREET TUNNEL.

March 31, 1926:		
Net cost of tunnel	$7,928,583 52	
Rental for one quarter		$89,196 57
June 30, 1926:		
Net cost of tunnel	7,931,915 97	
Rental for one quarter		89,234 05
September 30, 1926:		
Net cost of tunnel	7,934,345 30	
Rental for one quarter		89,261 39
December 31, 1926:		
Net cost of tunnel	7,939,905 05	
Rental for one quarter		89,323 93
	Total	$357,015 94

CAMBRIDGE CONNECTION.

March 31, 1926:		
Net cost of connection	$1,637,251 66	
Rental for one quarter		$19,954 00
June 30, 1926:		
Net cost of connection	1,638,204 07	
Rental for one quarter		19,965 61
September 30, 1926:		
Net cost of connection	1,639,540 97	
Rental for one quarter		19 981 91
December 31, 1926:		
Net cost of connection	1,639,594 66	
Rental for one quarter		19,982 56
	Total	$79,884 08

BOYLSTON STREET SUBWAY.

March 31, 1926:		
Net cost of subway	$5,246,949 98	
Rental for one quarter		$59,028 19
June 30, 1926:		
Net cost of subway	5,247,661 13	
Rental for one quarter		59,036 19
September 30, 1926:		
Net cost of subway	5,249,131 83	
Rental for one quarter		59,052 73
December 31, 1926:		
Net cost of subway	5,249,632 93	
Rental for one quarter		59,058 37
	Total	$236,175 48

EAST BOSTON TUNNEL EXTENSION.

March 31, 1926:		
Net cost of extension	$2,334,623 75	
Rental for one quarter		$26,264 52
June 30, 1926:		
Net cost of extension	2,332,342 02	
Rental for one quarter		26,238 85
September 30, 1926:		
Net cost of extension	2,332,342 02	
Rental for one quarter		26,238 85
December 31, 1926:		
Net cost of extension	2,332,342 02	
Rental for one quarter		26,238 85
	Total	$104,981 07

DORCHESTER TUNNEL.

March 31, 1926:		
Net cost of tunnel	$10,791,217 63	
Rental for one quarter		$121,401 20
June 30, 1926:		
Net cost of tunnel	10,797,622 88	
Rental for one quarter		121,473 26
September 30, 1926:		
Net cost of tunnel	10,801,772 98	
Rental for one quarter		121,519 94
December 31, 1926:		
Net cost of tunnel	10,808,972 23	
Rental for one quarter		121,600 94
	Total	$485,995 34

ARLINGTON STATION.

March 31, 1926:		
Net cost of station	$1,217,925 43	
Rental for one quarter		$13,701 66
June 30, 1926:		
Net cost of station	1,217 922 93	
Rental for one quarter		13,701 63
September 30, 1926:		
Net cost of station	1,217,922 93	
Rental for one quarter		13,701 63
December 31, 1926:		
Net cost of station	1,217,888 45	
Rental for one quarter		13,701 25
	Total	$54,806 17

EAST BOSTON TUNNEL.

March 31, 1926:		
Net cost of tunnel	$3,387,768 82	
Rental for one quarter		$38,112 40
June 30, 1926:		
Net cost of tunnel	3,390,143 77	
Rental for one quarter		38,139 12
September 30, 1926:		
Net cost of tunnel	3,390,577 02	
Rental for one quarter		38,143 99
December 31, 1926:		
Net cost of tunnel	3,390,671 64	
Rental for one quarter		38,145 05
	Total	$152,540 56

HYDE PARK STREET RAILWAY.

March 31, 1926:		
Cost of premises	$225,000 00	
Rental for one quarter		$2,531 25
June 30, 1926:		
Cost of premises	225,000 00	
Rental for one quarter		2,531 25
September 30, 1926:		
Cost of premises	225,000 00	
Rental for one quarter		2,531 25
December 31, 1926:		
Cost of premises	225,000 00	
Rental for one quarter		2,531 25
	Total	$10,125 00

EAST BOSTON TUNNEL ALTERATIONS.

March 31, 1926:		
Net cost of alterations	$3,769,443 77	
Rental for one quarter		$42,406 24
June 30, 1926:		
Net cost of alterations	3,770,733 02	
Rental for one quarter		42,420 75
September 30, 1926:		
Net cost of alterations	3,770,972 18	
Rental for one quarter		42,423 44
December 31, 1926:		
Net cost of alterations	3,770,960 64	
Rental for one quarter		42,423 31
	Total	$169,673 74

TOTALS.

Tremont Street Subway	$196,947 59
Washington Street Tunnel	357,015 94
Cambridge Connection	79,884 08
Boylston Street Subway	236,175 48
East Boston Tunnel Extension	104,981 07
Dorchester Tunnel	485,995 34
Arlington Station	54,806 17
East Boston Tunnel	152,540 56
Hyde Park Street Railway	10,125 00
East Boston Tunnel Alterations	169,673 74
	$1,848,144 97

STATEMENT OF EXPENSES.

The following is a classified statement of the expenses of the department for the year ending December 31, 1926.

EAST BOSTON TUNNEL.

Credit:				
Field Supplies			$1 85	
SECTION B.				
Elevator Changes		$630 04		
Labor		503 89		
		$1,133 93		
Credit:				
Construction	$137 06			
Field Supplies	36			
		137 42		
			996 51	
				$994 66

BOSTON TUNNEL AND SUBWAY.

Escalators			$7 23	
SECTION 4.				
Skilled Service			20 58	
SECTION 6.				
Construction	$4 55			
Escalators	14,474 76			
Labor	76 00			
		$14,555 31		
Credit:				
Skilled Service		4 30		
			14,551 01	
				$14,578 82

CAMBRIDGE CONNECTION.

Escalators		$14 12		
Credit:				
Skilled Service		9 67		
			$4 45	
Alterations Stairway No. 5:				
Credit:				
Field Supplies		$1 95		
Alterations Stairway No. 8:				
Credit:				
Construction		$5 12		
Field Supplies		40		
		$5 52		
SECTION 2.				
Escalators			2,695 08	
			$2,699 53	
		cr.	7 47	
				$2,692 06

DORCHESTER TUNNEL.

Engineering and miscellaneous:		
Escalators	$10 36	
Park Street Enlargement	61 72	
	$72 08	
Credit:		
Skilled Service	10 36	
		$61 72

SECTION B.

Construction Supplies	$92 00	
Escalators	1,989 54	
Labor	120 75	
	$2,202 29	
Credit:		
Skilled Service	6 44	
		2,195 85

SECTION D.

Escalators		4,190 01

SECTION E.

Credit:		
Stationery — Supplies		1 00

SECTION F.

Construction Supplies	$37 87	
Escalators	3,913 03	
Labor	1,001 10	
Skilled Service	15 86	
Supplies — Field	2 30	
		4,970 16

SECTION J.

Construction Supplies	$260 74	
Escalators	6,329 30	
Labor	1,445 27	
Skilled Service	2 41	
Stationery — Supplies	30	
Supplies — Field	73	
		8,038 75

SECTION K.

Engineering and miscellaneous:		
Coleman Bros., Inc. (Contract 784)	$59,529 93	
Advertising	16 50	
Alterations	43 42	
Chief Engineer	125 00	
Clerks	72 67	
Construction supplies	109 99	
Field supplies	181 01	
Labor	6,203 95	
Lighting	17 22	
Main Line Track Changes	874 21	
Carried forward	$67,173 90	$19,455 49

Brought forward		$67,173 90	$19,455 49	
Paving		8,594 18		
Professional Advice		400 00		
Property Damages — Takings,		20,200 29		
Rental — Engineering		120 83		
Yard		66 67		
Skilled Service		1,263 08		
Stationery — Supplies		40 05		
Stenographers		88 05		
Tools		6 02		
Water Pipes		2,369 00		
Interest		46,800 00		
		$147,122 07		
Office:				
Transferred from Dorchester Rapid Transit account	$592 13			
Printing	100 00			
		692 13		
			147,814 20	
				$167,269 69

BOYLSTON STREET SUBWAY.

Office:		
Printing		$25 00
Engineering and miscellaneous:		
Labor	$638 93	
Field supplies	1 65	
		640 58

Section 1.

Construction Supplies	$128 72	
Labor	2,346 52	
Professional Advice	150 00	
Skilled Service	329 59	
Stationery — Supplies	6 96	
Supplies — Field	11 24	
Tools	1 00	
		2,974 03

Section 2.

Construction Supplies	$298 47	
Labor	1,081 69	
Skilled Service	49 72	
Stationery — Supplies	7 30	
Supplies — Field	10 40	
Tools	40	
		1,447 98

Section 3.

Labor		148 00

Section 4.

Construction Supplies	$7 02	
Labor	595 65	
Stationery — Supplies	40	
Supplies — Field	40	
		603 47
Carried forward		$5,839 06

Brought forward		$5,839 06	

Section 5.

Labor	$60 00		
Stationery — Supplies	40		
		60 40	
			$5,899 46

EAST BOSTON TUNNEL EXTENSION.

Engineering and miscellaneous:			
Escalators		$22 25	

Section G.

Escalators	$981 02		
Credit:			
Skilled Service	18 17		
		962 85	

Section H.

Construction supplies	$3 79		
Labor	136 75		
Field Supplies	60		
		141 14	

Section J.

Stationery — Supplies	$3 20		
Credit:			
Skilled Service — Chapter 444 — Acts 1924	2,385 31		
		2,382 11	
			* $1,255 87

ARLINGTON STATION.

Construction:			
Labor		$169 25	
Credit:			
Construction Supplies	$21 07		
Tools	15 91		
		36 98	
			$132 27

EAST BOSTON TUNNEL ALTERATIONS.

Office:			
Printing			$15 00
Engineering and miscellaneous:			
Skilled Service	$76 19		
Stationery Supplies	6 15		
		$82 34	
Credit:			
Skilled Service		151 24	
			68 90
Construction:			
Labor		$3,257 56	
Paving		196 61	
Professional Advice		600 00	
		$4,054 17	
Carried forward		$4,054 17	$53 90

---

* Decrease.

Brought forward		$4,054 17	$53 90	
Credit:				
Construction Supplies,	$999 95			
Field Supplies	28 52			
Tools	756 37			
		1,784 84		
			2,269 33	
				$2,215 43

HYDE PARK STREET RAILWAY.

Credit:	
Property Damages — Takings	* $1,501 00

EAST BOSTON TUNNEL ALTERATIONS — ACTS 1924.

Atlantic Ave. Station:			
Construction Supplies	$925 57		
Field Supplies	306 19		
Labor	800 20		
Skilled Service	505 01		
Stationery — Supples	10 11		
		$2,547 08	
East Boston Tunnel:			
Credit:			
Construction Supplies		38 71	
Scollay Station:			
Escalators		48 72	
			$2,557 09

TREMONT STREET SUBWAY ALTERATIONS — ACTS 1924.

Engineering and miscellaneous:			
Field Supplies	$14 46		
Labor	131 02		
Skilled Service	70 50		
		$215 98	
Hanover Street:			
Skilled Service		17 18	
Scollay Station:			
Credit:			
Skilled Service		17 18	
			$215 98

DORCHESTER RAPID TRANSIT.

Office:		
Clerks	$5,687 17	
Commissioners and Secretary,	15,407 89	
Furniture	286 18	
Lighting	494 43	
Office Boy	624 00	
Printing	455 20	
Rental	7,250 01	
Stationery — Supplies	754 01	
Stenographer — Conveyancer	2,676 65	
Telephone — Telegraph	1,834 41	
	$35,469 95	
Transfer to Dorchester Tunnel — Section K	592 13	
Carried forward		$34,877 82

---

* Decrease.

Brought forward			$34,877 82
Engineering and miscellaneous:			
Advertising		$21 75	
Autos		3,549 19	
Chief Engineer		7,375 00	
Clerks and Stenographers		5,236 43	
Equipment — Skilled Service		6,939 79	
Field Supplies		17 64	
Furniture		19 00	
Instruments		62 48	
Labor		1,868 97	
Lighting		464 22	
Printing		423 25	
Rental — Engineering		7,129 17	
Rental — Yard		4,558 33	
Repairs		51 05	
Skilled Service		6,011 94	
Stationery — Supplies		4,769 97	
Stenographers		4,695 93	
Telephone — Telegraph		658 18	
Acquisition — Shawmut Branch	$950,000 00		
Credit:			
Material	562 67		
		949,437 33	
			1,003,289 62

SECTION 1.

M. F. Gaddis (Contract 790)		$421,564 86	
Stations:			
Columbia	$34,378 15		
Savin	3,575 98		
		37,954 13	
Field Offices:			
Crescent Ave	$488 54		
Freeport St.	89 26		
Savin Hill Ave.	977 20		
		1,555 00	
Bridges:			
Bay Street	$19 66		
Columbia Road	2,458 10		
Freeport Street	980 35		
Freeport Street Under	2,988 10		
Savin Hill Ave.	874 87		
		7,321 08	
Advertising	$11 83		
Autos	331 98		
Clerks	2,177 35		
Construction Supplies	3,277 68		
Equipment — Skilled Service	2,827 86		
Field Supplies	1,011 28		
Fuel	582 17		
Inspection	888 91		
Instruments	173 12		
Labor	46,284 61		
Lighting	845 19		
Carried forward,	$58,411 98	$468,395 07	$1,038,167 44

Brought forward,	$58,411 98	$468,395 07	$1,038,167 44
Main Line Track Changes	144,073 02		
Professional Advice	3,187 00		
Property Damages — Takings	28,132 60		
Rental	458 34		
Skilled Service	24,879 02		
Stationery — Supplies	383 75		
Steel — Labor	55 31		
Telephone — Telegraph	141 71		
Tools	771 34		
Water Pipes	6,384 64		
		266,878 71	
			735,273 78

SECTION 2.

A. G. Tomasello & Son, Inc. (Contract 804)		$112,913 06	
Bridges:			
Adams Street	$965 70		
Clayton Street	2,526 08		
Dorchester Avenue	629 54		
Dorchester Ave. Underpass	932 07		
Freeman Street	11,156 39		
Geneva Avenue	174 35		
		16,384 13	
Stations:			
Fields Corner		31,591 14	
Sub-Stations:			
Harrison Sq.		39,674 35	
Field Offices:			
Fields Corner		217 75	
Advertising	$717 24		
Autos	19 28		
Construction Supplies	2,711 05		
Equipment — Skilled Service	169 04		
Field Supplies	1,593 30		
Inspection	322 71		
Instruments	138 06		
Labor	8,157 99		
Lighting	254 02		
Printing	566 00		
Professional Advice	337 50		
Property Damages — Takings	1,812 67		
Skilled Service	27,923 98		
Stationery — Supplies	309 08		
Steel — Labor	79 38		
Material	1,704 28		
Carried forward	$46,815 58	$200,780 43	$1,773,441 22

Brought forward,	$46,815 58	$200,780 43	$1,773,441 22
Telephone — Telegraph	2 40		
Tools	2,849 98		
Water Pipes	725 00		
		50,392 96	
			251,173 39

SECTION 3.

C. & R. Construction Co. (Contract 805)		$46,428 15	
Bridges:			
Centre Street	$433 76		
Mather Street	1,046 27		
Melville Ave.	1,032 38		
Park Street	1,307 75		
Welles Ave.	1,033 50		
		4,853 66	
Stations:			
Shawmut		13,170 19	
Field Offices:			
Shawmut		290 88	
Advertising	$504 04		
Construction Supplies	2,049 31		
Equipment — Skilled Service	180 93		
Field Supples	101 98		
Inspection	442 82		
Instruments	31 31		
Labor	5,066 27		
Printing	254 00		
Property Damages — Takings	13 16		
Skilled Service	20,894 35		
Stationery — Supplies	202 40		
Steel — Labor	361 00		
Material	22,443 52		
Telephone — Telegraph	2 40		
Tools	9 24		
Water Pipes	1,575 00		
		54,131 73	
			118,874 61

SECTION 4.

Stations:			
Ashmont		$486 72	
Bridges:			
Codman Street	$544 56		
Peabody Square	76 52		
		621 08	
Advertising	$9 00		
Construction supplies	7,773 04		
Labor	12 08		
Property Damages — Takings	163 17		
Carried forward,	$7,957 29	$1,107 80	$2,143,489 22

Brought forward,	$7,957 29	$1,107 80	$2,143,489 22	
Skilled Service	7,570 81			
Stationery — Supplies	22 35			
Skilled Service — Equipment	39 82			
		15,590 27		
			16,698 07	

SECTION 5.

Instruments	$42 89			
Labor	60 03			
Property Damages — Takings	13 17			
Skilled Service	6,129 81			
Stationery — Supplies	33 88			
			6,279 78	
Interest			71,400 00	
				$2,237,867 07

Increase:

East Boston Tunnel	$994 66	
Boston Tunnel and Subway	14,578 82	
Cambridge Connection	2,692 06	
Dorchester Tunnel	167,269 69	
Boylston Street Subway	5,899 46	
East Boston Tunnel Extension	* 1,255 87	
Arlington Station	132 27	
East Boston Tunnel Alterations	2,215 43	
Hyde Park Street Railway	* 1,501 00	
Tremont Street Subway Alterations — Acts 1924	215 98	
East Boston Tunnel Alterations — Acts 1924	2,557 09	
Dorchester Rapid Transit	2,237,867 07	
		$2,431,665 66

SUMMARY.

	From beginning of work to Dec. 31, 1925.	Jan. 1, 1926, to Dec. 31, 1926.	Total.
Subway — Subway Commission	$14,131 16		$14,131 16
Part of General Expenses,	117,550 71		117,550 71
Engineering and miscellaneous	407,475 48		407,475 48
Section One	239,407 12		239,407 12
Two	363,605 50		363,605 50
Three	300,639 36		300,639 36
Three and one-half	9,355 70		9,355 70
Four	472,147 31		472,147 31
Five	387,411 49		387,411 49
Six	327,541 86		327,541 86
Seven	231,504 27		231,504 27
Eight	95,902 06		95,902 06
Carried forward	$2,966,672 02		$2,966,672 02

* Decrease.

	From beginning of work to Dec. 31, 1925.	Jan. 1, 1926, to Dec. 31, 1926.	Total.
Brought forward	$2,966,672 02		$2,966,672 02
Eight and one-half	76,639 47		76,639 47
Nine	299,452 07		299,452 07
Ten	254,497 88		254,497 88
Eleven	270,310 57		270,310 57
Interest	258,575 60		258,575 60
	$4,126,147 61		$4,126,147 61
Transfer to Alterations, see 11th report	4 95		4 95
	$4,126,142 66		$4,126,142 66
Alterations — Part of General Expenses	$28,945 53		$28,945 53
Section Three	2,568 26		2,568 26
Four	163 42		163 42
Five	30,233 01		30,233 01
Seven	178,516 16		178,516 16
Nine	3 00		3 00
Ten	534 04		534 04
Interest	1,905 56		1,905 56
Transfer from subway, see 11th report	4 95		4 95
	$242,873 93		$242,873 93
Charlestown Bridge: Total	$1,570,197 98		$1,570,197 98
Investigation of Congestion of Traffic, etc.	$3,015 92		$3,015 92
East Boston Tunnel — Part of General Expenses	$161,134 78		$161,134 78
Engineering and miscellaneous	199,690 58	* $1 85	199,688 73
Section A	98,869 09		98,869 09
B	1,487,316 72	996 51	1,488,313 23
C	508,202 77		508,202 77
D	246,569 26		246,569 26
E	188,307 72		188,307 72
F	243,763 23		243,763 23
Interest	248,156 88		248,156 88
	$3,382,011 03	$994 66	$3,383,005 69
Boston Tunnel and Subway — Part of General Expenses	$226,547 21		$226,547 21
Engineering and miscellaneous	419,483 36	$7 23	419,490 59
Carried forward	$646,030 57	$7 23	$646,037 80

---

* Decrease.

	From beginning of work to Dec. 31, 1925.	Jan. 1, 1926, to Dec. 31, 1926.	Total.
Brought forward	$646,030 57	$7 23	$646,037 80
Section One	815,591 24		815,591 24
Two	614,158 55		614,158 55
Three	683,842 49		683,842 49
Four	1,205,244 49	20 58	1,205,265 07
Five	1,080,101 86		1,080,101 86
Six	334,534 67	14,551 01	349,085 68
Seven	139,723 14		139,723 14
Eight	617,152 07		617,152 07
Nine	678,714 43		678,714 43
Ten	142,835 42		142,835 42
Eleven	345,493 91		345,493 91
Twelve	45,417 52		45,417 52
Interest	648,179 81		648,179 81
	$7,997,020 17	$14,578 82	$8,011,598 99
Cambridge Connection — Part of General Expenses	$67,261 25		$67,261 25
Engineering and miscellaneous	258,508 58	* $3 02	258,505 56
Section One	590,277 28		590,277 28
Two	637,416 37	2,695 08	640,111 45
Interest	76,722 00		76,722 00
	$1,630,185 48	$2,692 06	$1,632,877 54
Dorchester Tunnel — Part of General Expenses	$197,392 47		$197,392 47
Engineering and miscellaneous	833,210 61	$61 72	833,272 33
Section A	409,378 71		409,378 71
B	877,734 82	2,195 85	879,930 67
C	460,379 33		460,379 33
D	1,116,207 32	4,190 01	1,120,397 33
E	2,366,599 58	* 1 00	2,366,598 58
F	862,413 79	4,970 16	867,383 95
G	616,158 18		616,158 18
H	892,879 48		892,879 48
J	954,612 65	8,038 75	962,651 40
K	1,119,561 72	147,814 20	1,267,375 92
Interest	1,312,320 20		1,312,320 20
	$12,018,848 86	$167,269 69	$12,186,118 55
Boylston Street Subway — Part of General Expenses	$104,130 53	$25 00	$104,155 53
Engineering and miscellaneous	239,361 45	640 58	240,002 03
Carried forward	$343,491 98	$665 58	$344,157 56

* Decrease.

	From beginning of work to Dec. 31, 1925.	Jan. 1, 1926, to Dec. 31, 1926.	Total.
Brought forward	$343,491 98	$665 58	$344,157 56
Section One	758,607 05	2,974 03	761,581 08
Two	1,230,722 38	1,447 98	1,232,170 36
Three	585,416 58	148 00	585,564 58
Four	1,458,331 73	603 47	1,458,935 20
Five	729,105 29	60 40	729,165 69
Interest	320,194 59		320,194 59
	$5,425,869 60	$5,899 46	$5,431,769 06
East Boston Tunnel Extension — Part of General Expenses	$38,383 04		$38,383 04
Engineering and miscellaneous	976,228 54	$22 25	976,250 79
Section G	325,476 71	962 85	326,439 56
H	673,315 22	141 14	673,456 36
J	138,106 77	* 2,382 11	135,724 66
Interest	224,138 91		224,138 91
	$2,375,649 19	* $1,255 87	$2,374,393 32
Arlington Station — Part of General Expenses	$41,313 26		$41,313 26
Engineering and miscellaneous	72,952 00		72,952 00
Construction	580,136 01	$132 27	580,268 28
Extension	483,064 06		483,064 06
Interest	55,738 68		55,738 68
	$1,233,204 01	$132 27	$1,233,336 28
East Boston Tunnel Alterations — Part of General Expenses	$75,392 79	$15 00	$75,407 79
Engineering and miscellaneous	171,876 25	557 78	172,434 03
Construction	3,401,882 87	1,642 65	3,403,525 52
Interest	168,217 76		168,217 76
	$3,817,369 67	$2,215 43	$3,819,585 10
Hyde Park Street Railway — Part of General Expenses	$2,195 04		$2,195 04
Engineering and miscellaneous	312,874 86	* $1,501 00	311,373 86
	$315,069 90	* $1,501 00	$313,568 90
Tremont Street Subway Alterations — Acts 1924, Part of General Expenses	$1,093 59		$1,093 59
Engineering and miscellaneous	603 22	$215 98	819 20
Carried forward	$1,696 81	$215 98	$1,912 79

---

* Decrease.

	From beginning of work to Dec. 31, 1925.	Jan. 1, 1926, to Dec. 31, 1926.	Total.
Brought forward . .	$1,696 81	$215 98	$1,912 79
Adams Station . .	2,401 75		2,401 75
Brattle Street — Easterly Platform . . .	7,723 72		7,723 72
Hanover St. . . .	11 38	17 18	28 56
Haymarket Station .	15,161 01		15,161 01
Park Street Station — North Platform . .	4,486 41		4,486 41
Scollay Station . .	437 98	* 17 18	420 80
	$31,919 06	$215 98	$32,135 04
East Boston Tunnel Alterations, Acts 1924 .			
Atlantic Station . .		$2,547 08	$2,547 08
East Boston Tunnel .	$5,143 84	* 38 71	5,105 13
Scollay Station . .		48 72	48 72
	$5,143 84	$2,557 09	$7,700 93
Dorchester Rapid Transit			
Part of General Expenses	$56,441 09	$34,877 82	$91,318 91
Engineering and miscellaneous	107,200 03	1,003,289 62	1,110,489 65
Section One . . .	384,522 48	735,273 78	1,119,796 26
Two . . .	3,914 62	251,173 39	255,088 01
Three . . .	3,445 69	118,874 61	122,320 30
Four . . .	1,525 36	16,698 07	18,223 43
Five . . .	6,620 86	6,279 78	12,900 64
Interest	9,266 67	71,400 00	80,666 67
	$572,936 80	$2,237,867 07	$2,810,803 87
Chapter 78 — Resolves of 1913	$389 14		$389 14
Chapter 84 — Resolves of 1913	$636 58		$636 58
Dorchester Tunnel Extension	$520 19		$520 19
Grand Totals . .	$44,749,004 01	$2,431,665 66	$47,180,669 67

The report of the Chief Engineer follows.

THOMAS F. SULLIVAN,
NATHAN A. HELLER,
JAMES B. NOYES,
Commissioners.

---

* Decrease.

REPORT OF THE CHIEF ENGINEER.

Boston, December 31, 1926.

Thomas F. Sullivan, Nathan A. Heller and James B. Noyes, *Commissioners, City of Boston Transit Department.*

Gentlemen,— I herewith submit a report for the year ending December 31, 1926.

The following work, most of which was described in the previous report, was in progress at the beginning of the year.

The construction of Section 1, Dorchester Rapid Transit, was being done under contract with M. F. Gaddis. The work had progressed to a point where the gravel for subgrading was being placed on the steam railroad right of way; steelwork for one half of the new Columbia Road bridge over the rapid transit right of way was being erected; excavation for Savin Hill Cut was in progress and piles were being driven for the Bay Ridge Creek Culvert.

The work of relocating the railroad freight sidings was being carried on under agreement with the New York, New Haven & Hartford Railroad Company, and the new freight track from Boston Street bridge to Columbia road, together with the three spurs to industrial plants, was about one half completed.

The field engineers and inspectors of the Department were engaged on line and grade work and inspection on Section 1. Part of the engineering force was carrying on surveys in Dorchester on Sections 3 and 5 on the location of the new rapid transit line on the Shawmut Branch of the New York, New Haven & Hartford Railroad.

The office engineering force was engaged on designs, construction plans and specifications for Sections 1, 2 and 3 of the Dorchester Rapid Transit, and also on taking plans for real estate in connection with Sections 2 and 3 of the same. Plans were also being prepared for the proposed Charles Street Station of the Cambridge–Main Street Subway, the work being done for the Massachusetts Department of Public Utilities.

The field engineering and construction work on all sections has continued throughout the year under the direction of

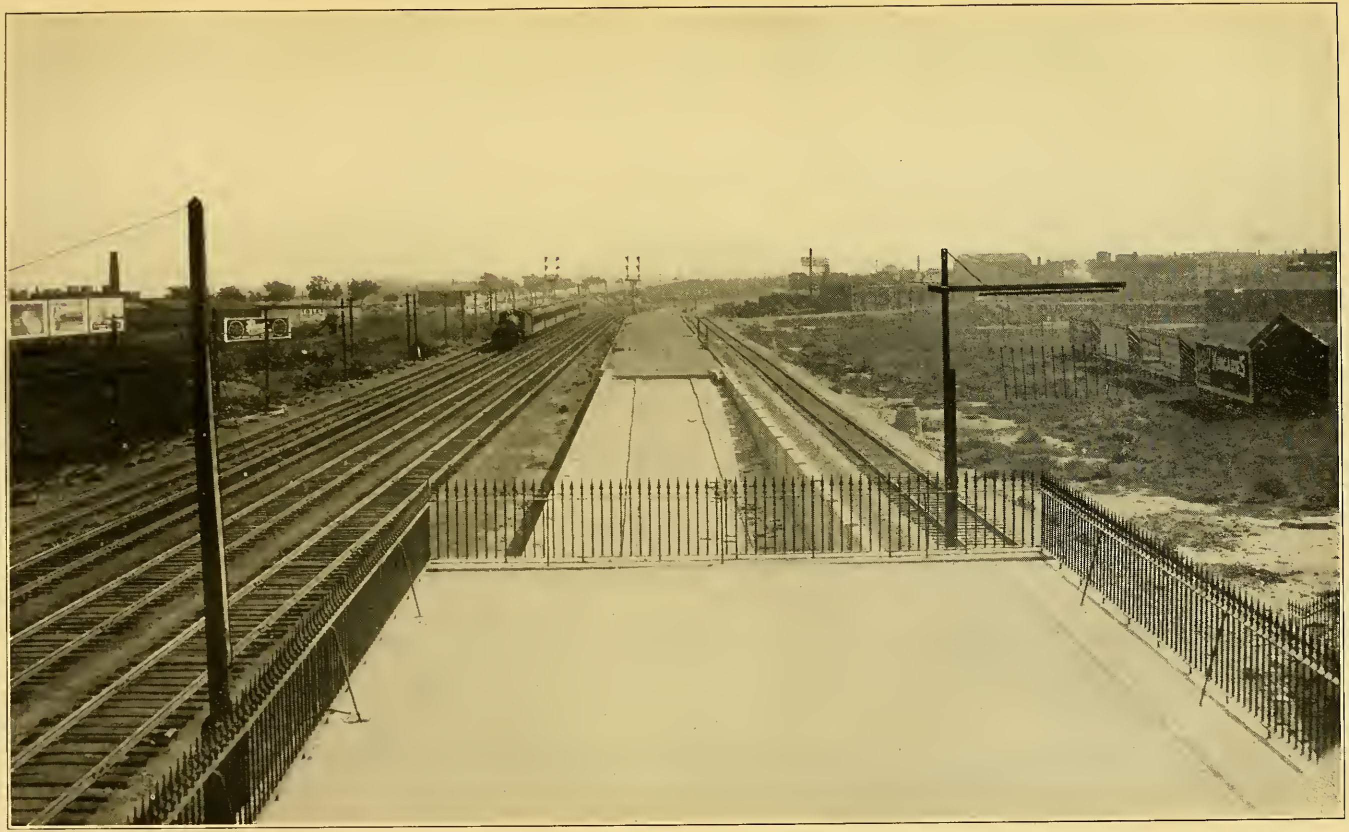

PLATE I.—VIEW LOOKING SOUTHEAST FROM TUNNEL ROOF SHOWING OPEN INCLINE AND RAPID TRANSIT RIGHT OF WAY BEYOND.

Assistant Chief Engineer Wilbur W. Davis. The office engineering work has been done under the direction of Designing Engineer Leonard B. Howe.

Plans and specifications have been prepared and contracts let during the year for considerable new work, namely —

Entrance and Exit Building, stairway and platform canopy, Columbia Station.
Construction Section 2—Dorchester Rapid Transit.
Harrison Substation—Section 2—Dorchester Rapid Transit.
Construction Section 3—Dorchester Rapid Transit.
Excavation and grading—Section 4—Dorchester Rapid Transit.
Removal of buildings for Fields Corner Station.
Temporary relocation of Crescent Avenue, Fields Corner and Shawmut Railroad Stations.
Removal of old Savin Hill and Ashmont Railroad Stations.
Removal of old buildings in Codman Street Yard.
Contracts for equipment—Sections 1 and 2—Dorchester Rapid Transit.
Pipe Crossing in roof of Tremont Street subway, corner Charles and Boylston Streets.
Permanent paving on Boston Street and on Dorchester Avenue—Section K—Dorchester Tunnel.
Repairs to superstructure, Atlantic Avenue Station, East Boston Tunnel.

DORCHESTER RAPID TRANSIT. SECTION ONE.

The work on this section, in progress at the beginning of the year, was continued through to completion. With the opening of spring, operations were started at several new locations along the line of the section.

During the year the drainage and signal and power conduit systems were completed from the beginning of Section 1 at the Dorchester Tunnel Incline out as far as Columbia Road bridge and the gravel subgrade placed along the rapid transit right of way. The freight track and spurs for the three industrial sidings, described in previous reports, were also completed and put in operation.

Plate I is a view looking southeast from the roof of the new tunnel extension at the portal, and shows the open incline and the new right of way beyond.

The new abutment for the Columbia Road bridge was completed, the steelwork erected and the reinforced concrete bridge floor finished early in the year. The concrete foundations for the station at this point and also the concrete station platform were completed during the summer. This station has an island platform built at a level about four feet above top of rail. The platform is from 20 to 25 feet wide and 300 feet long, with provision for further extension. The station building and canopy were let under a separate contract, an account of which will follow the description of the general contract for Section 1.

SAVIN HILL.

At Savin Hill the work has progressed in the successive stages that were necessary in order to maintain four track railroad operation. In making the cut through the hill it was necessary to relocate the highway bridge over the railroad tracks and at the same time remove the existing railroad stations and provide temporary ones. The temporary station for the inbound traffic was built by the contractor and is located opposite the playground.

The old Savin Hill highway bridge spanning the four railroad tracks was a through plate girder bridge with three plate girder cross beams hung beneath the main through girders. The cross beams were located in the spaces between the tracks. The floor system consisted of wooden stringers with plank flooring for the roadway and sidewalks. This bridge is the only thoroughfare across the New Haven railroad tracks into Savin Hill. Its importance to the Fire Department and to vehicular and foot traffic precluded any possibility of closing it to traffic even a short time during the work of moving it to its new location. The plans and specifications for Section 1 provided, therefore, for a temporary wooden bridge. The specifications also outlined a schedule of operations by which the old bridge would be moved and an extension to it built over the new rapid transit right of way during the time that the railroad tracks were being relocated. The method of procedure necessarily involved close co-operation between the railroad company and the contractor, as their parts of the work alternated step by step, and every precaution was required to prevent a serious accident. The temporary bridge was constructed first. This bridge was built on the floor of the old bridge and occupied one half the width of the old bridge roadway. It was built with steel beam girders, beneath which were hung steel cross beams, supporting wooden stringers and plank flooring. One sidewalk, fenced on both sides, was provided. Although this temporary bridge was built on top

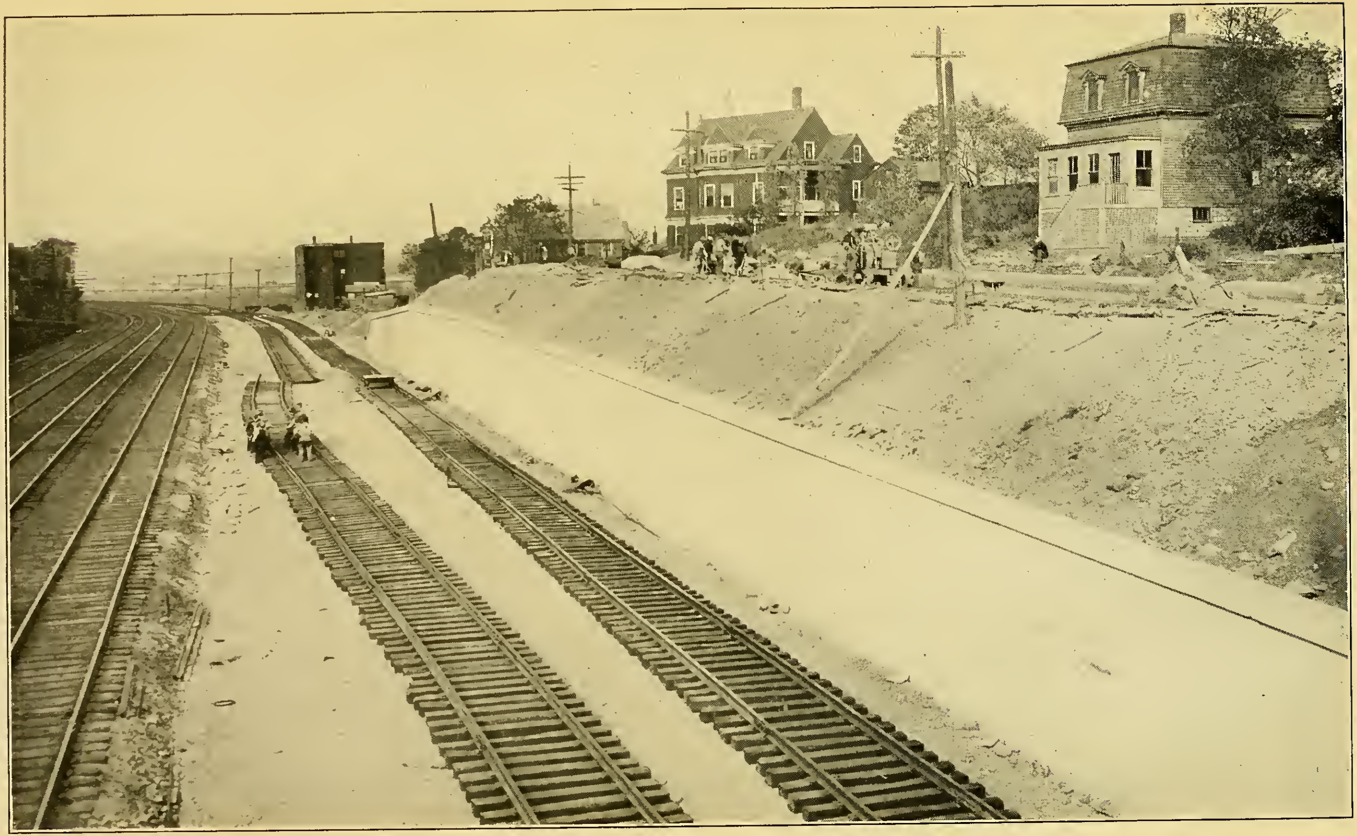

PLATE II.—VIEW SHOWING NEW LOCATION OF RAILROAD TRACKS, SAVIN HILL CUT.

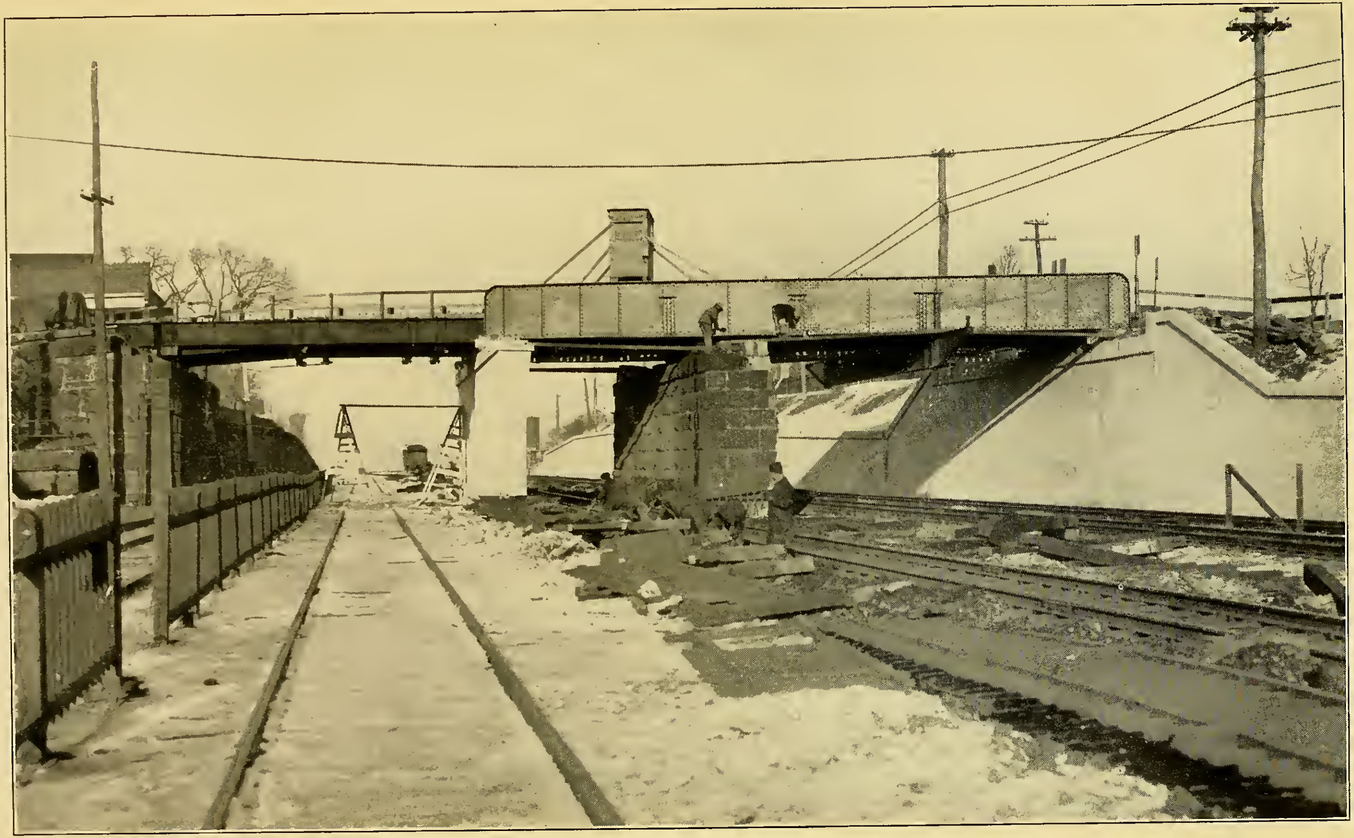

PLATE III.—OLD SAVIN HILL BRIDGE IN NEW LOCATION. THE OLD ABUTMENTS ARE TO BE REMOVED. VIEW ALSO SHOWS PART OF TEMPORARY BRIDGE AND TRAFFIC SIGNAL TOWER.

of the old bridge floor, it was so arranged that the ends could be blocked up onto the new pier and abutment as soon as each was constructed, thereby permitting the removal of the old bridge from beneath. The temporary bridge was necessarily much longer than the old bridge as the easterly portion was designed to span the new cut when made, and the west end was to be carried beyond the old abutment to make a ramp of suitable grade; the street grade on that end dropping off rather sharply. About half way across the bridge a signal tower was constructed spanning over the sidewalk. A police officer stationed in this tower controlled traffic in both directions by means of a signal system of red and green electric lights. The temporary bridge occupied the southerly half of the old roadway. Therefore the southerly half of the new easterly abutment was constructed first. After the bridge was supported on the new portion of the easterly abutment and traffic turned onto it the remainder of the old bridge was shut off and the northerly half of the new easterly abutment built. This permitted the completion of the excavation and the construction of the reinforced concrete retaining walls for the entire length of cut through Savin Hill. This, together with the removal of the old easterly railroad station buildings and the construction of a new temporary railroad station a little farther to the south, brought the contractor's work to the stage where the second period of time under his contract began. This is the period in which it is possible for the railroad to relocate its tracks in their permanent locations for the entire distance of about one mile.

Plate II shows a portion of the Savin Hill Cut, and the railroad's trackwork at this location.

The railroad's work at the Savin Hill bridge, as previously stated, must be carried on step by step in conjunction with the contractor's work. The method by which this work is proceeding is as follows:

The completion of the Savin Hill Cut allowed for the immediate relocation of two of the four railroad tracks, *i. e.* the two easterly tracks. These tracks were put into operation successfully, and with the abandonment and removal of the old tracks, the contractor proceeded with the next step in his work at this point; namely the construction of the new reinforced concrete center pier built on one of the old track locations. This pier supports the west end of the old bridge in its new location and the east end of the new bridge extension when built over the rapid transit right of way. When this pier was finished and the concrete properly set the contractor proceeded to move the old bridge easterly to its new location.

The contract provided in moving the bridge that the old wooden flooring should be removed, the steel girders and cross girders separated, thoroughly scraped and painted, and a new creosoted wooden floor system put on. The bridge was moved to its new location without mishap. Two derrick cars were brought in and placed one at each end of the cross girders; the three cross girders were then removed and later each of the two main girders was swung over to its new position.

Plate III shows a view taken just after the moving of the old bridge. The old stone abutments here shown are to be removed. The photograph also shows a portion of the temporary bridge and the street traffic signal tower.

The work at this location has now reached the point where the next step necessary is the removal of the old easterly abutment. The removal of this abutment, when completed, will permit the permanent relocation of the two remaining railroad tracks. This, in turn, will permit the construction of the new westerly abutment and the north half of the new steel and concrete bridge extension over the rapid transit right of way. When the north half of the permanent Savin Hill bridge is completed it is planned to turn traffic onto it. The temporary bridge will then be removed, and the southerly half of the permanent bridge constructed.

Savin Hill Avenue north from Savin Hill bridge was relocated on account of widening the railroad cut. This work was embraced in the contract for Section 1 and the new roadway has been completed. It is paved with sheet asphalt on a concrete base. There are new granolithic sidewalks on both sides of the street. A new board fence has been built along the westerly, or railroad, side of the street. This fence also extends south from Savin Hill bridge, along the new property line, to the playground.

FREEPORT UNDERPASS AND YARD.

The new reinforced concrete underpass for the railroad freight track into the Freeport street yard has been built up to a point where further construction must await the work of relocating the railroad tracks in accordance with the method

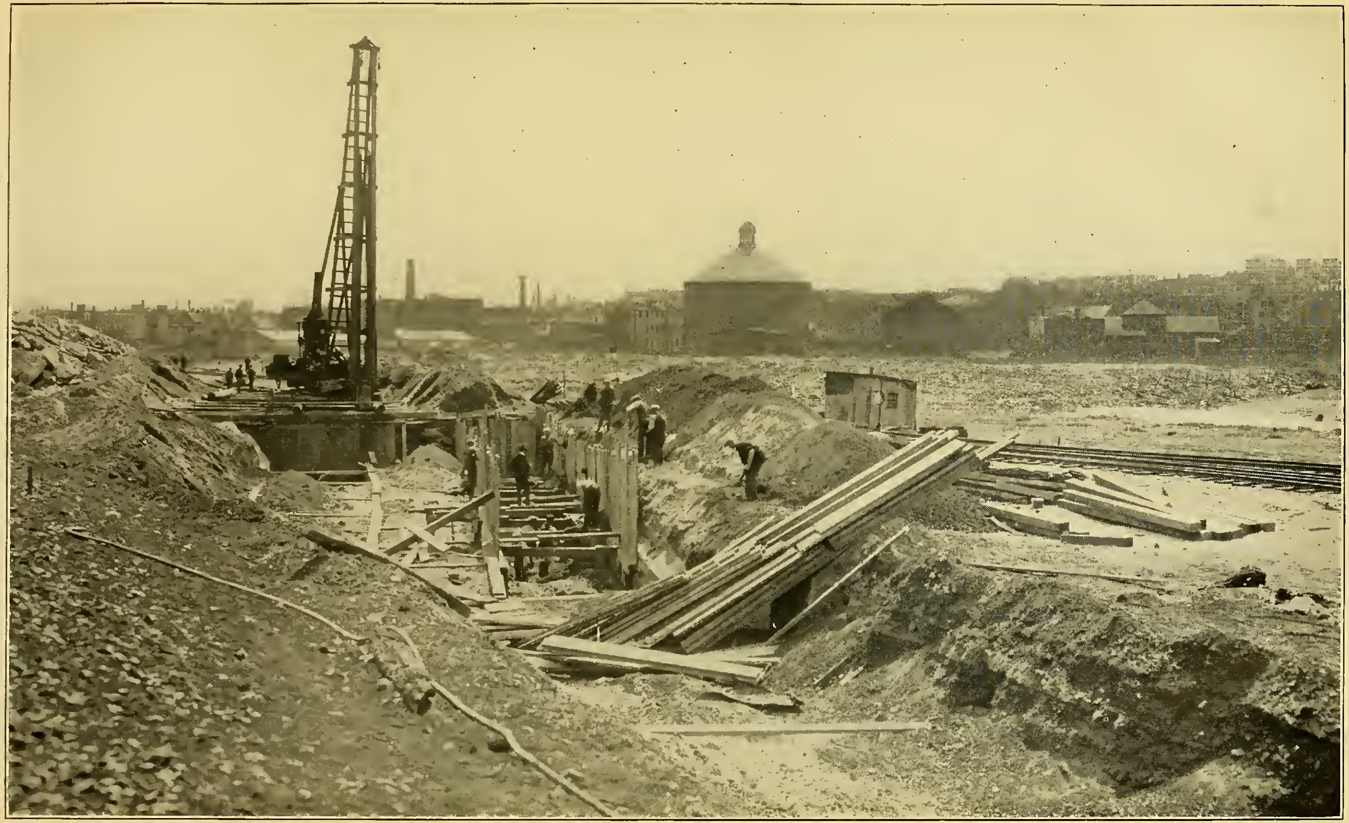

PLATE IV.—DRIVING PILES FOR FOUNDATIONS OF UNDERPASS TO FREEPORT STREET YARD.

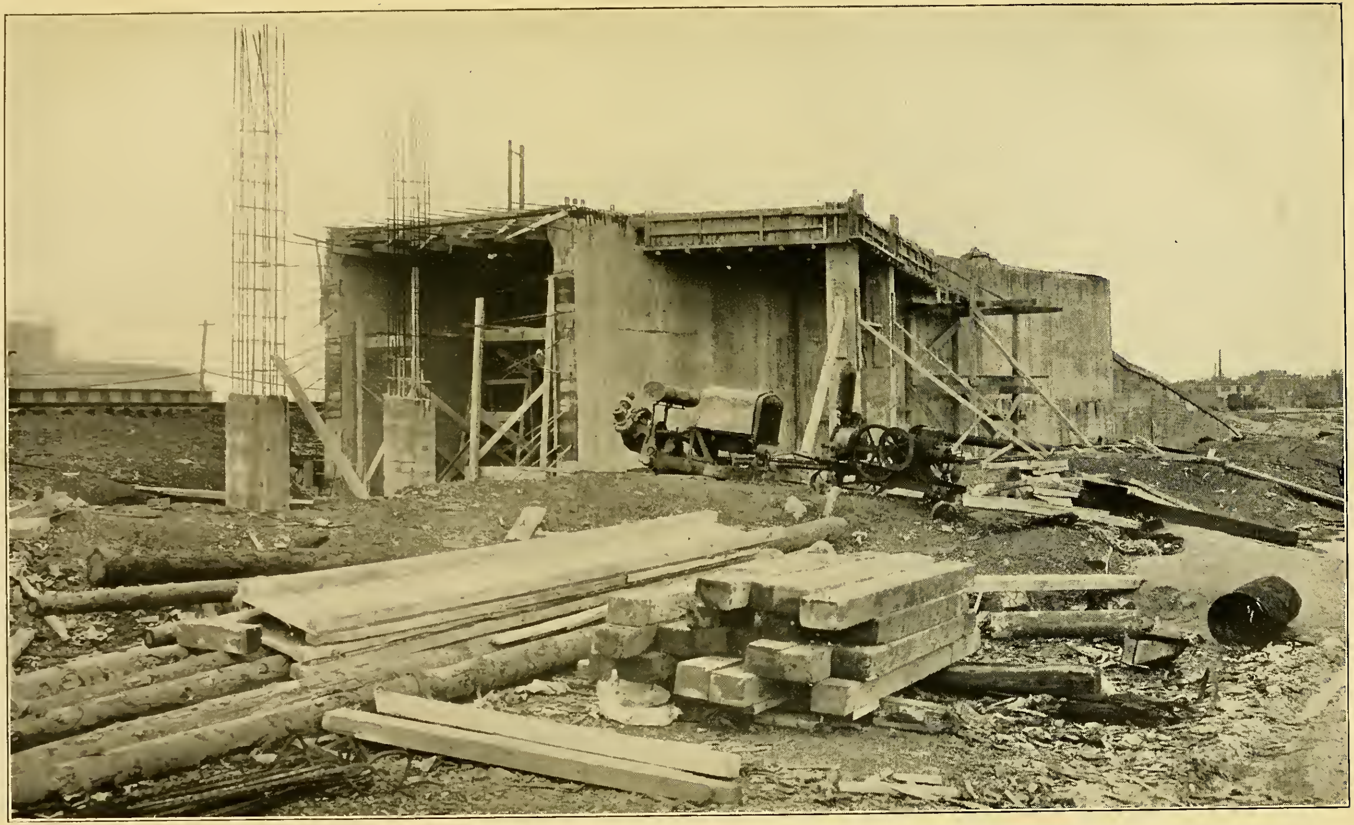

PLATE V.—CONSTRUCTION OF SUPERSTRUCTURE OF UNDERPASS TO FREEPORT STREET YARD.

of procedure outlined above. During the construction of the southerly or lower portion of the underpass, very bad ground was encountered, the sub-soil conditions being much worse than anticipated from the borings taken in that vicinity. The foundations were, therefore, redesigned and it was found necessary to drive a large number of spruce piles. These piles averaged forty-five feet in length. The part of the structure thus far built has shown no settlement and has been carried up to a point in the old embankment where satisfactory bearing may be expected without further pile foundations. The superstructure is of reinforced concrete with steel roof beams where the rapid transit tracks are to cross above it.

Plate IV shows the pile driving and general method of construction of the underpass foundations.

Plate V shows the construction of the superstructure of the underpass.

The Bay Ridge Creek Culvert was described in the last annual report. The work of extending the culvert a total length of sixty feet was continued without interruption to its completion early in the spring.

The extension of the Bay Ridge Creek Culvert allowed the relocation of the freight tracks in the Freeport street yard to be made. The necessary gravel filling and grading in the yard was done, the track work completed, the freight house moved to its new location and the yard repaved. With the relocation of the yard it was possible to place the remainder of the filling for the embankment for the rapid transit right of way from the underpass to the Freeport street bridge.

FREEPORT STREET BRIDGE.

The construction of a new two track bridge for the rapid transit lines across Freeport street was started early in April and completed during the current year under the general contract for Section 1. The abutments are built of reinforced concrete carried down from twenty to twenty-two feet below street level to bearing on hard clay. These abutments occupy in part space formerly occupied by the wing walls of the adjacent railroad bridge. A peculiar form of construction was here adopted in order to save and to bond into as much as possible of the old wing wall of each abutment. The outer, or thinner, part of the old wing wall was removed, and the thicker part was embraced by and bonded into the new reinforced concrete in such a manner as to become a part of the new abutment. This type of construction was adopted for both northerly and southerly abutments. The superstructure of the bridge consists of two heavy through plate girders, the floor beams being heavy rolled beams encased in concrete, with a solid floor of reinforced concrete to provide for ballasted track construction.

Plate VI shows the erection of the plate girders for the Freeport Street Bridge.

FREEPORT STREET TO HARRISON SQUARE.

Beyond Freeport street to the south as far as Harrison square, the end of Section 1, the construction of the right of way consists of about equal stretches of embankment and retaining walls enclosing fill. The embankment and fill is made largely from material excavated at the Savin Hill cut, with necessary gravel borrow placed on top of the fill for the subgrade of the rapid transit tracks. The retaining walls and wing walls are L section constructed of reinforced concrete with the toe of wall beneath the fill. Good subsoil for foundations was found in this section. This work, together with the extension of the reinforced concrete underpass for passengers at the Harrison square railroad station, was completed during the year.

The completion of the embankment in the Freeport street yard, the Freeport Street Bridge and the embankment and fill beyond Freeport street enabled the contractor to start construction on the signal conduits, manholes and signal stands, and also the power conduits and manholes along this portion of the work. It was possible, therefore, during the year, for him to complete most of the signal and power conduit systems from the Underpass to Harrison square.

The work on this division of Section 1 had advanced far enough by early fall to permit the closing of the temporary field office located just south of Freeport street. The building was removed by the Department's laborers. The line and grade party and the inspectors were transferred to the new sections on the Shawmut Branch, Sections 2 and 3.

COLUMBIA STATION.

The contract for the construction of the Columbia Station building and canopy mentioned earlier in this report was

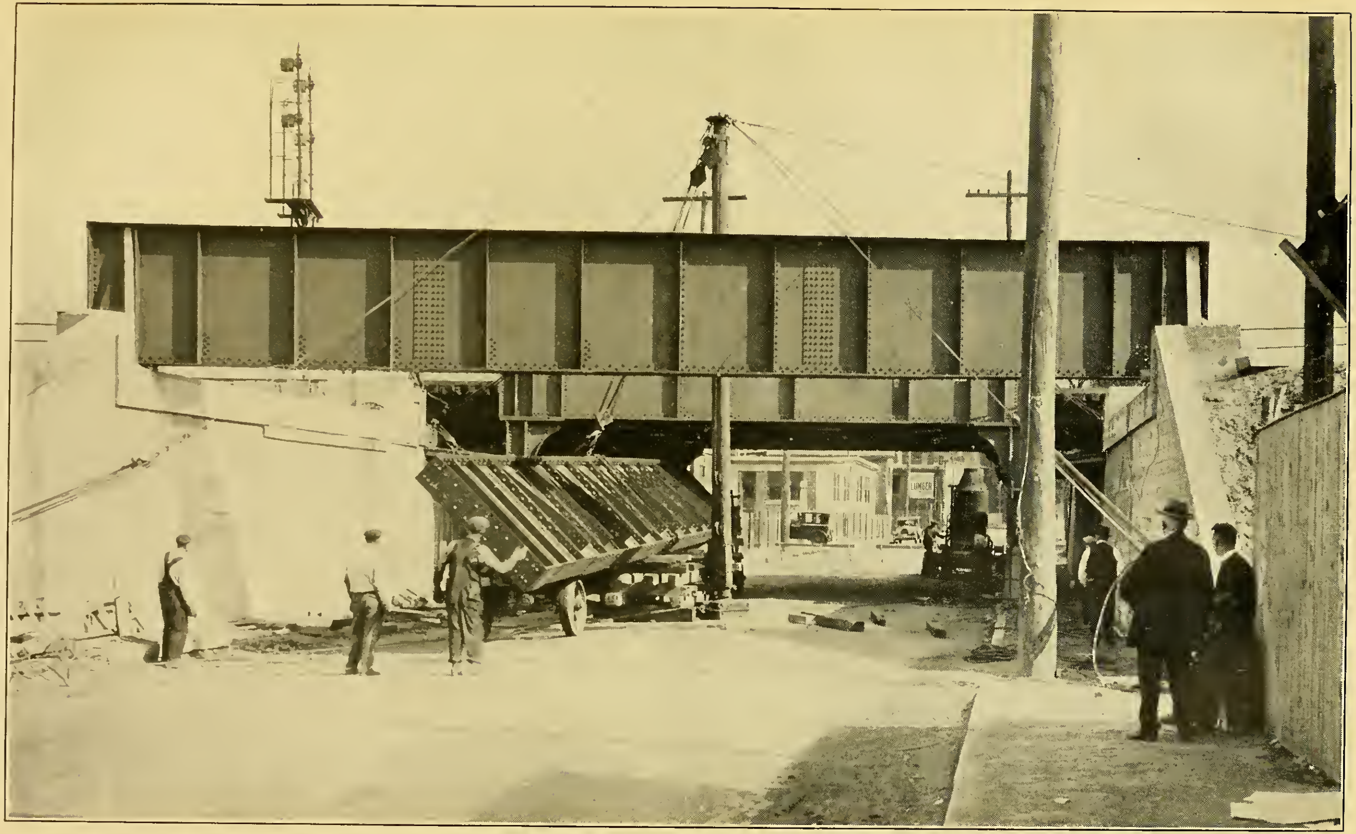

PLATE VI.—ERECTING PLATE GIRDERS FOR RAPID TRANSIT BRIDGE OVER FREEPORT STREET.

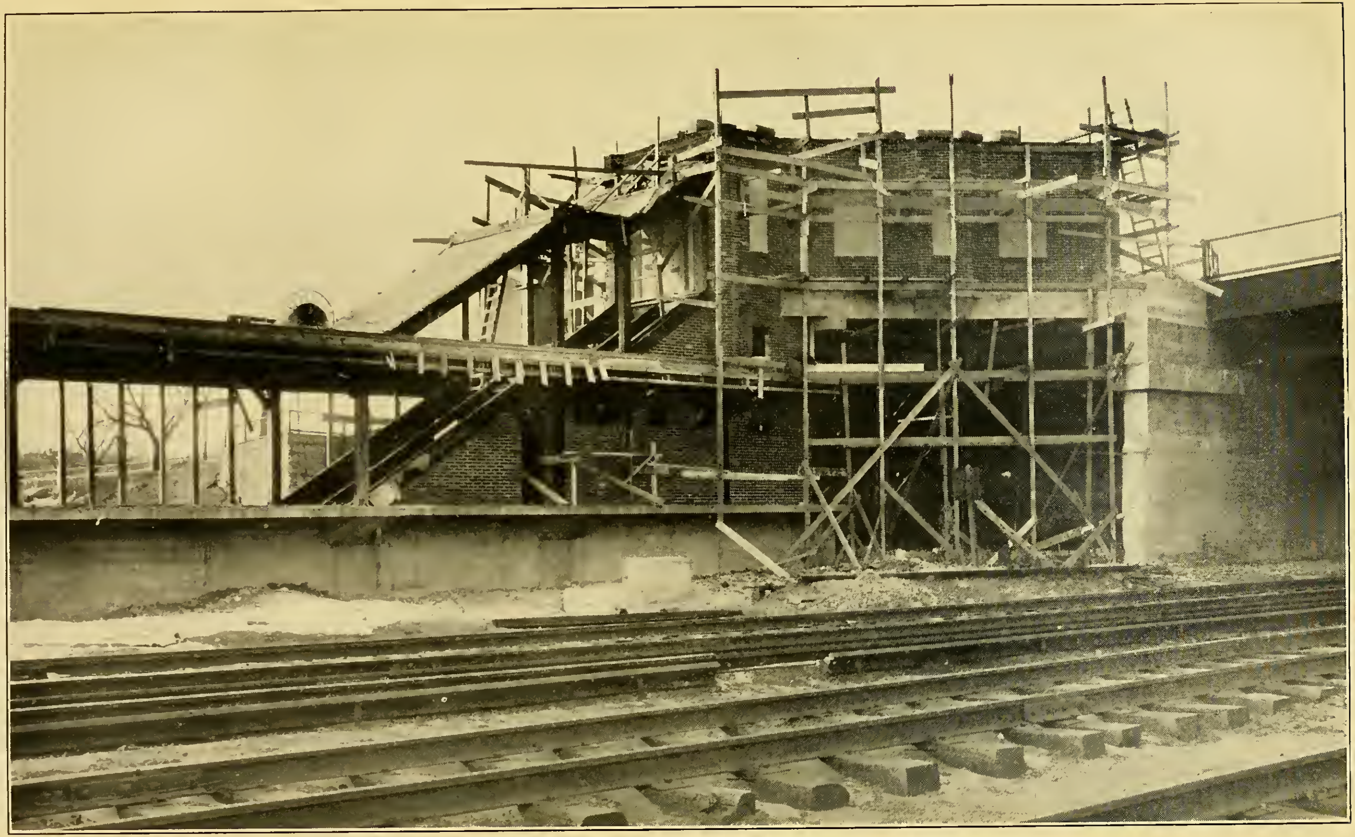

PLATE VII.—CONSTRUCTION OF COLUMBIA STATION.

awarded to J. P. Foley & Sons, the lower of two bidders. The work consists of the construction of a head house, or entrance and exit building, together with an enclosed stairway, platform canopy and platform waiting room.

The building is being built from designs made by Mr. William D. Austin, Consulting Architect. The exterior is of tapestry brick with red sandstone capping. The roof of the head house is a reinforced concrete slab supported by steel beams. The roofing is tar and gravel with copper flashing. The roof of stairway is copper covered. The front of the building faces directly on Columbia road, the floor being at the bridge level. There are seven metal covered doors. The doorways are separated by polished light Concord granite columns to which the door frames are attached. The windows in the building, and also those of the enclosed stairway, are steel casement sashes in steel frames. The interior of the building is to have white enameled brick walls, white plastered ceiling and granolithic floor. Beneath the iron stairway leading from the building down to the rapid transit platform are located the toilet rooms, the power and light switch rooms. The canopy is supported on steel columns and beams, and is built of reinforced concrete. It covers the entire platform for a length of 300 feet. The roofing is to be tar and gravel with copper flashing, and the roof has a deep copper cornice. About 80 feet from the foot of the stairs there will be a platform waiting room and station master's room.

All structural steel for this contract was designed, furnished and erected by the Department, all other construction is being done by the contractor.

Plate VII shows the construction work of Columbia station now in progress.

REMOVAL OF OLD RAILROAD STATIONS — SECTION ONE.

The railroad's main line stations at Crescent avenue and Savin Hill have been kept open during the construction work on Section 1. It has been necessary to make changes at both stations, however, in order to permit construction work to proceed.

The Crescent station has been partitioned off and used partly by the railroad and partly by the Transit Department as a field office for its engineers. During the year it became necessary to move it back to clear the line of construction work. The work of moving was done for the Department by T. Ahern's Sons. The building was left on blocking and is to be removed when no longer needed by the railroad and the Department.

The easterly station building at Savin Hill was removed as soon as the new temporary station previously mentioned was built. The work of demolishing this building was done by the Department's men. The westerly station building was removed for the Department by the American Building Wrecking Company. The field engineers and inspectors on this portion of the work occupy a temporary field office on South Sidney street, situated on the land acquired by the Department, but not in direct line of the construction work.

Shawmut Branch.

The purchase of the Shawmut Branch of the New York, New Haven & Hartford Railroad, provided for in the Act authorizing the construction of the Dorchester Rapid Transit, was made during the year. In preparation for this purchase, surveys were completed, necessary data secured and taking plans were made covering the entire branch from Harrison square through Dorchester and Milton to Mattapan square, a distance of over four miles.

Previous to the purchase of the Shawmut Branch, careful consideration was given to the method that would be used in carrying on the construction work of the new rapid transit lines. The possibility of continuing the existing steam train service during construction was studied with a view to ascertaining the most practical method by which this could be accomplished. Plans and estimates were finally prepared showing a scheme by which the steam trains could be safely operated and at the same time permit the new construction work to proceed. This scheme, however, like others that had been considered, involved a considerable expenditure of money on account of the large amount of temporary construction work that would be required to put it in operation.

The general layout of the new rapid transit system differed so materially from that of the old steam railroad in regard to stations, high platforms, signal and power systems and track construction that it was impossible to build the new system until the old was removed. It would have been necessary to build at least one new temporary steam railroad track parallel to the existing tracks in order to maintain service. Moreover, the railroad right of way was so narrow that in order to provide a suitable right of way for the new temporary track, it would have necessitated the taking by right of eminent domain a strip of land which in many cases would also require the taking of residences, garages and stores as well as the land.

The additional time required to make the takings, prepare the right of way, construct and later remove the temporary track was estimated at about one year. This delay, together with the large extra cost involved, made this method of procedure practically prohibitive.

The method finally adopted provided for the removal of steam train service altogether; but only at such time as plans and specifications were finished, contracts let and everything in readiness for actual construction work to proceed. It was unnecessary, however, to stop train service over the entire branch as there existed a railway connection with the Neponset Branch at a point called Shawmut Junction, a little over half way out on the Shawmut Branch. By use of this connection it was possible to give train service via Neponset to the stations at Milton, Central Avenue and Mattapan. The New Haven Railroad had expressed its willingness to continue its train service over this part of the Shawmut Branch and preparations were therefore made, subject to proper authorization, to proceed with the work in accordance with this method.

The portion of the Branch upon which train service was to be discontinued was for construction purposes divided into three sections, namely Sections 2, 3 and 4, Dorchester Rapid Transit. Section 2 covers that portion of the work from Harrison square to Geneva avenue. It is one half a mile in length and includes the Fields Corner transfer station. Section 3 extends from Geneva avenue to Peabody square. It is about one mile long and includes the Shawmut station. Section 4 extends from Peabody square to Shawmut Junction. It is about three-quarters of a mile in length and includes the Ashmont transfer station and the new Codman street car yard.

The construction work on Sections 2 and 3 required a large amount of excavation. The construction of Section 4 required a considerable amount of fill both in the station and the yard and its approach. It was planned, therefore, to let the general contracts for Sections 2 and 3 practically simultaneously and to provide in the specifications that all suitable excavated materials be deposited in Section 4. In order to prepare the site at Section 4, contracts were to be let for certain grading, removal of buildings, etc. This plan of operation was carried into effect and on August 26 the contract was signed for work on Section 2. On September 4 the contract was signed for Section 3. Steam train operation ceased on this portion of the Shawmut Branch on the night of September 4 by authorization of the Department of Public Utilities. The work of removing the tracks, signals and station buildings started immediately thereafter.

SECTION TWO.

The general contract for this section was awarded to A. G. Tomasello & Sons, Inc., the lowest of ten bidders.

The work embraced in the contract consists of the removal of the old railroad tracks, the construction of a new roadbed for the rapid transit lines, also the construction of Fields Corner Station platforms, passageways and stairways, and a concrete busway or roadway for buses; inclines and an underpass for trolley cars, together with certain equipment such as signal and power conduits. The work also includes alteration and construction of bridges, retaining walls, drainage systems and sewers; the construction of new concrete floors is also included on the Clayton street, Adams street and Dorchester avenue and Geneva avenue bridges. The removal of the old bridge and the construction of three new bridges at Freeman street is provided for under the contract.

The general method of procedure and an outline of the work thus far completed on this contract is as follows:

The removal of the old tracks and signals was practically the first work done under the contract. Such rails and ties as were deemed suitable for use on the Dorchester Rapid Transit work were sent to the Codman street yard and there piled in a location where they would not interfere with the construction of the trackwork in the new yard.

Plate VIII shows a general view at Fields Corner taken shortly after the removal of the tracks and old station building.

The construction of the new concrete busway between Geneva avenue and Freeman street was started and completed early in the fall. A portion of the busway south of the station crossing Faulkner street to the Boston Elevated Railway yard

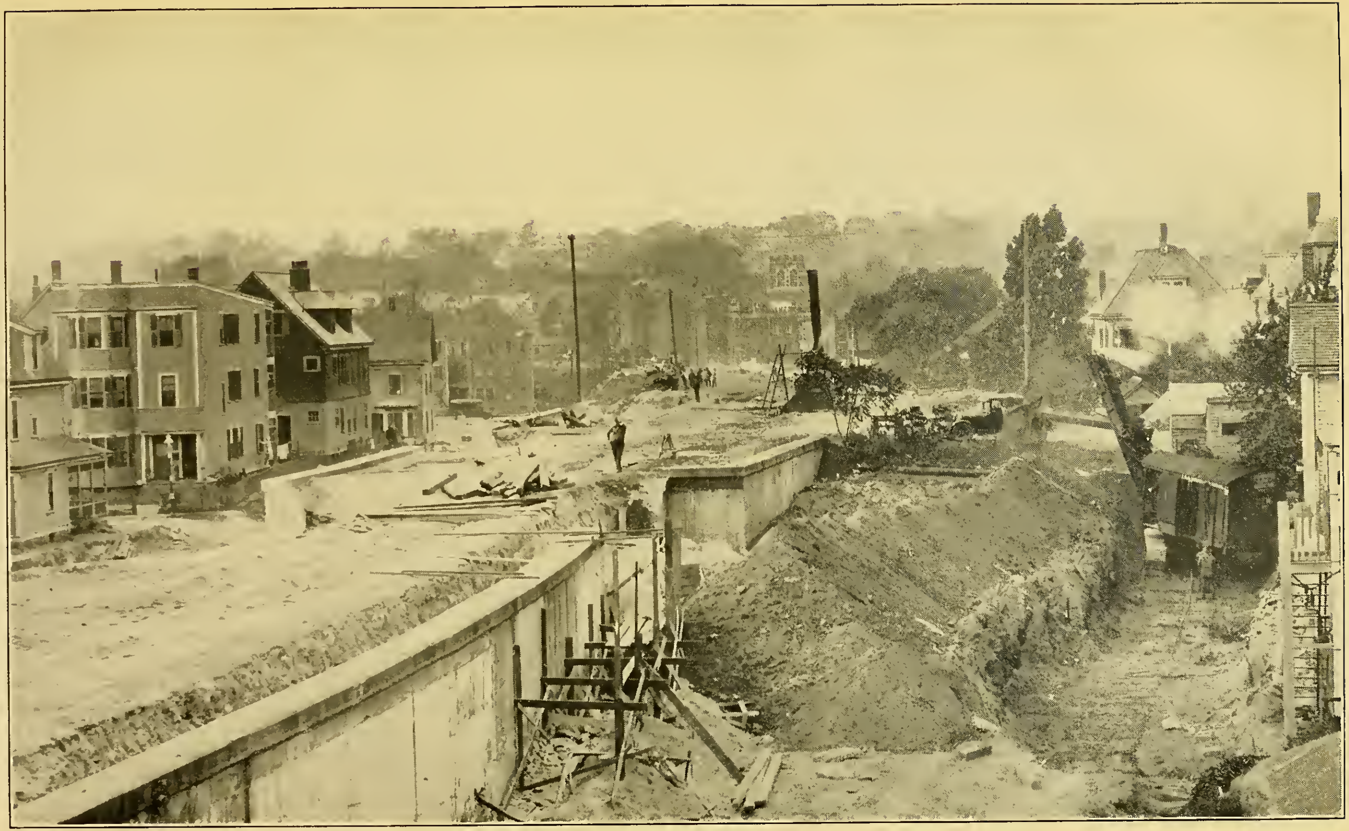

PLATE VIII.—VIEW AT FIELDS CORNER, TAKEN SHORTLY AFTER REMOVAL OF RAILROAD TRACKS AND STATION.

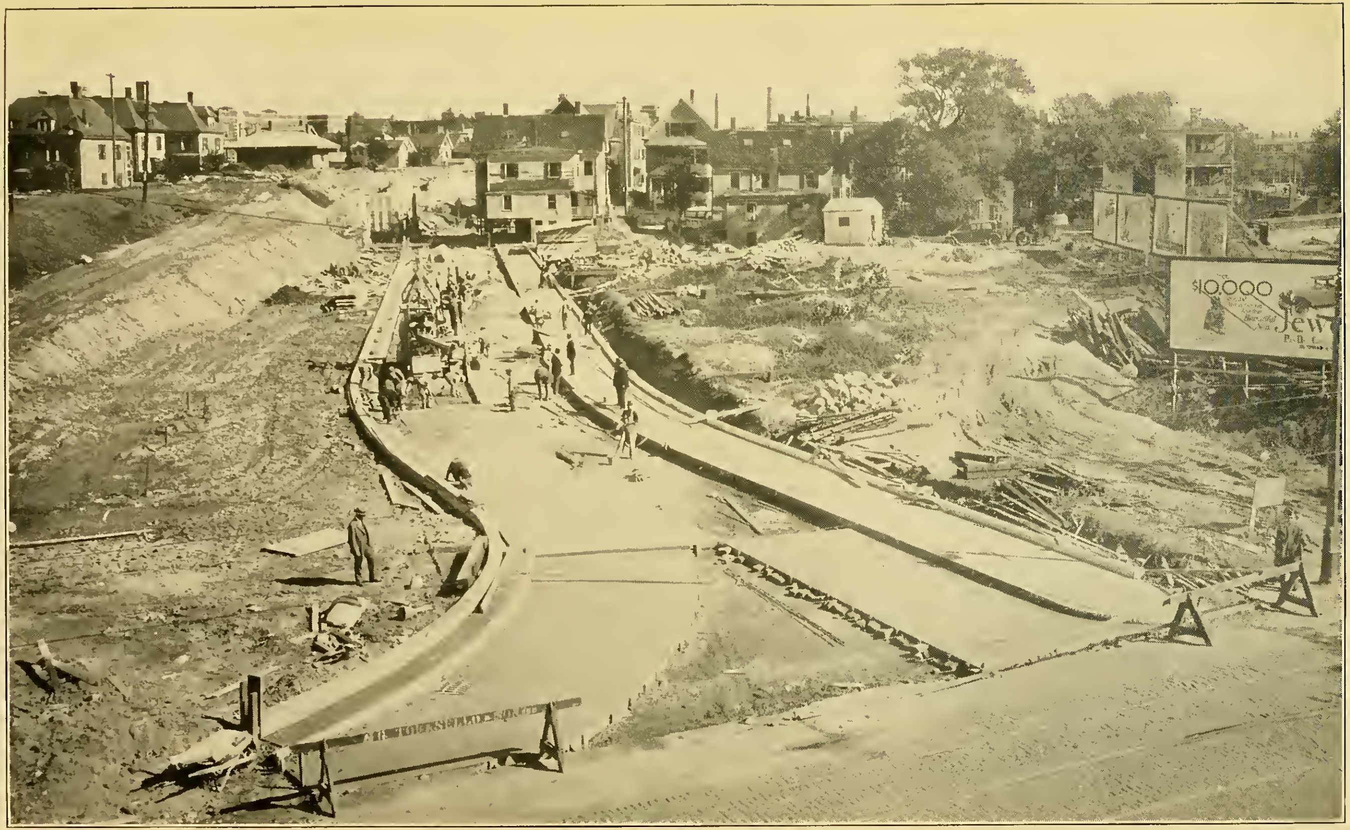

PLATE IX.—CONSTRUCTION OF BUSWAY FOR NEW FIELDS CORNER STATION.

was also completed. These sections of the busway are built of reinforced concrete, the roadway being a minimum of 20 feet in width. A granolithic sidewalk eight feet in width having a granite curbing is built along side of the busway. The covered portion of the busway under the station is in all about 350 feet long and is to have a 20-foot roadway and a platform of from twelve to fourteen feet in width. Excavation for the covered portion of the busway, where considerable rock that required blasting was encountered, is about finished and some of the structural steelwork is erected.

Plate IX is a general view showing construction work in the portion of the busway between Geneva avenue and Freeman street.

The excavation and construction of about two-thirds of the retaining walls required on this section has been completed. This includes much of the work for the trolley car inclines.

The new reinforced concrete floor for the Geneva avenue bridge has been built. On all of the existing bridges these solid floors are being built to permit the use of ballasted tracks on the rapid transit line. The old Freeman street bridge has been removed, the old structural steel being delivered to the Transit Department yard by the contractor.

From Harrison square to Dorchester avenue the signal and power conduit systems have been built and the roadbed graded to subgrade.

At present work is progressing on the passageways and the busway in the station. The structural steel is being erected as fast as walls and foundations are ready to receive it.

Removal of Buildings — Section 2.

The construction of the Fields Corner Transfer station necessitated the taking of private property on both sides of the Shawmut Branch right of way which had been acquired by the Department. The real estate takings, which were made previous to advertising for bids on the general construction contract, included several apartment houses, single residences and garages. The buildings were removed for the Department by the Lowell Building Wrecking Company.

The old Fields Corner station was moved several hundred feet to the east to a location near Charles street, where it is being used as a field office for engineers and inspectors on Section 2. The moving was done by T. Ahern's Sons.

HARRISON SUBSTATION.

The contract for the Harrison Substation, the first of two substations now planned, to be built along the new rapid transit line, was awarded on October 5 to John P. Curley, the lowest of thirteen bidders.

Plans and specifications were prepared by the Department and provided for the construction of a one story brick building with concrete basement. The building is 34 feet wide by 52 feet long, and is located on Dickens street near Harrison square. The building, which is to be used for an automatic substation, is designed to have doors and windows in the front wall only. The sides and back are solid brick walls with pilasters 20 inches in width spaced about 12½ feet center to center. The exterior face is tapestry brick, the interior face being red, hard burned, wire cut, repressed brick.

The foundation and basement walls are built of unreinforced concrete. An opening four feet by six feet is provided in the rear basement wall for an air intake. The area walls of the intake are to be covered with a metal hood and screen.

The basement floor is a reinforced concrete slab supported on reinforced concrete beams. These beams are supported on concrete piers. It was found necessary to carry the piers down to a depth of about seven feet below the basement floor to a bearing on hard clay.

The main floor, which carries the rotary converter and other electrical equipment, is to be built of reinforced concrete supported on a structural steel frame which is carried on the side walls and interior columns. The columns are located immediately under the beams designed to support the rotary converters.

The roof is to be a reinforced concrete slab covered with tar and gravel roofing. The slab will be supported on steel purlins, carried on three steel roof trusses, which will span between the side walls.

Eight large "Liberty" ventilators are to be located on the roof.

The windows will be fixed steel sash, glazed with polished Mississippi wire glass. The doors and frames are to be metal covered.

The transformer platform is located on the easterly side of the building. It is to be a heavy reinforced concrete slab twelve feet wide and extending the length of the building. It will be supported on steel beams which rest on concrete caissons, about three feet in diameter, having spread footings five feet in diameter. These caissons are carried down about seven feet below the level of the basement to bearing on hard clay. At the present time the foundations, the basement, and the steelwork for the main floor and transformer platform are in place.

EQUIPMENT FOR SUBSTATION.

The amount of equipment which it is necessary for the Department to provide at this time is about one half of the capacity of the station. The contract for this equipment was awarded on June 24 to the General Electric Company, the lower of two bidders.

The equipment provided for in this contract is as follows:

One 3,000 KW rotary converter to deliver direct current at 600 volts.

Three power transformers, outdoor type, for operating the converter.

Two signal transformers, outdoor type.

Switching apparatus for both alternating and direct current.

Apparatus for automatic control, also remote supervisory control, with indicators at the dispatcher's station which is located at South Boston.

SECTION THREE.

This section runs through a residential district and there are at present five grade crossings. Early studies that had been prepared for this section contemplated the abolition of these grade crossings by lowering the tracks and making an open cut section with heavy retaining walls along the sides and with bridges at each of the five street crossings. The depth of the cut would be such that the question of handling snow when the third rail trains were put in operation presented a serious problem. To provide sufficient space for piling snow, it would have been necessary to build the retaining walls at a much greater distance from the third rail tracks than would be necessary in case the tracks were located in a subway. The additional width of excavation together with the heavier type of wall made it advisable to study into the possibility of building a covered section with a lighter type of wall and a roof designed merely as a covering. The cost of this work while slightly greater than an open cut section has the advantage of effecting many economies in operation. It also reduced the amount of real estate takings and damages, as well as doing away with the noise and danger of third rail operation through a thickly settled residential district.

The covered section, finally decided upon, begins at a point just east of Park street and extends through to Peabody square. From the portal east of Park street, the distance back to Geneva avenue is about 800 feet, the old railroad tracks runnning on an embankment for this distance. Plans were made to lower this embankment on a ½ per cent grade from the Geneva avenue bridge running down to the level of the invert of the incline at the portal of the covered section. The construction of this open right of way is similar to that of Sections 1 and 2.

The general contract for this section was awarded to the C & R Construction Company, the lowest of eleven bidders.

The work embraced in the contract for Section 3 consists of the construction of the open right of way and the covered section mentioned above, together with certain equipment such as signal and power conduits and manholes; also the construction of sewers, sewer siphons, the removal of structures, regrading, etc. The covered portion is to be built of structural steel and reinforced concrete, and includes a side platform station at Shawmut. The necessary supporting and underpinning of buildings is also provided for in the contract.

Construction work on this section was started in a similar manner to that of the previous section. The rails, ties, signals, gates and gate-houses were removed, beginning at Geneva avenue bridge and working south to Peabody square. The specifications provided that the rails on this section, and on section four beyond, might be used by the contractor if he found it advantageous to do so, in the hauling of his excavated materials to the new Codman street yard and to the embankment at the approach to the yard. The contractor, however, elected to use trucks, loading directly from his steam shovels and then depositing the materials in the yard, or on the approach embankment as directed. The first excavation was made just north of Park street.

Plate X is a view taken just after the tracks were removed and excavation started.

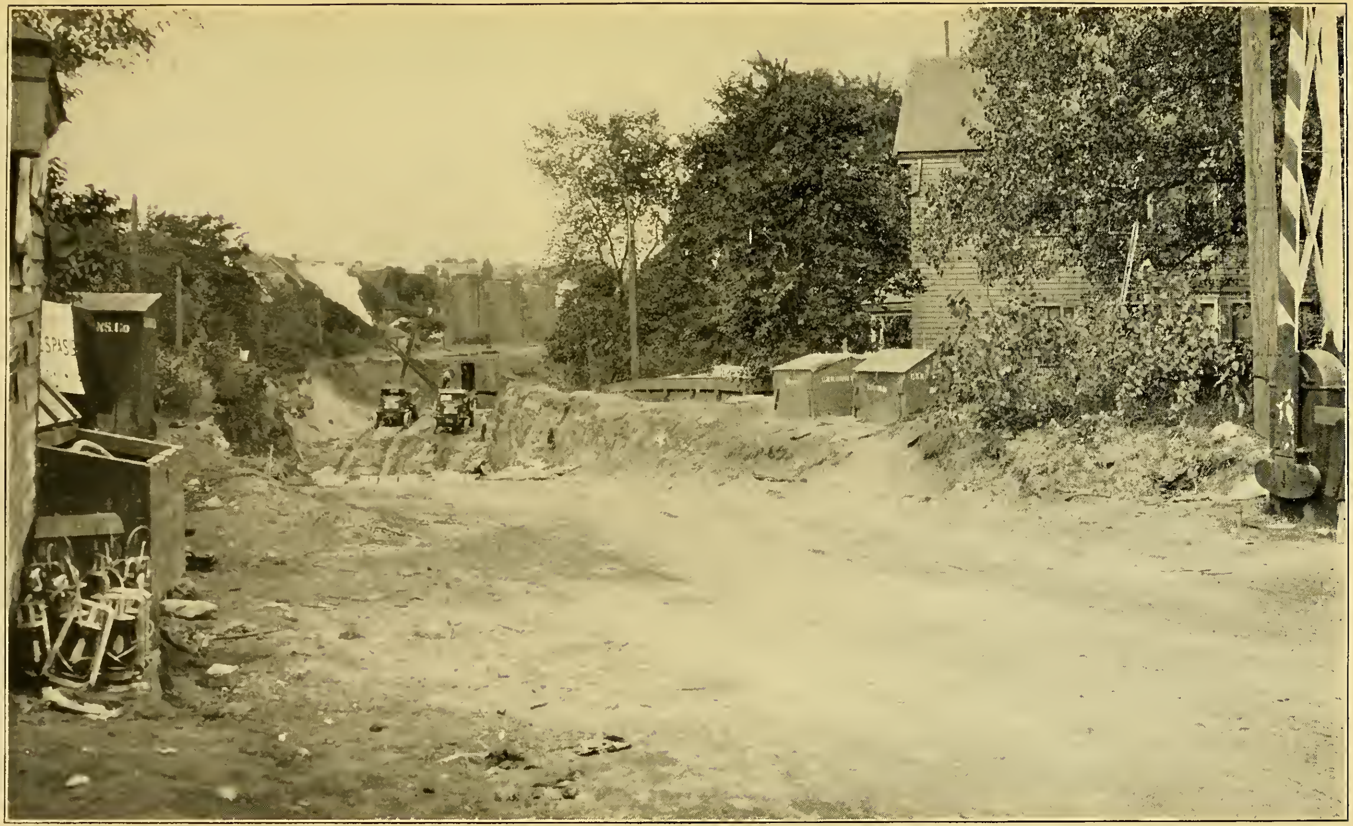

PLATE X.—EXCAVATION ON SECTION 3.—VIEW LOOKING NORTH FROM PARK STREET SHORTLY AFTER SHAWMUT BRANCH TRACKS WERE REMOVED.

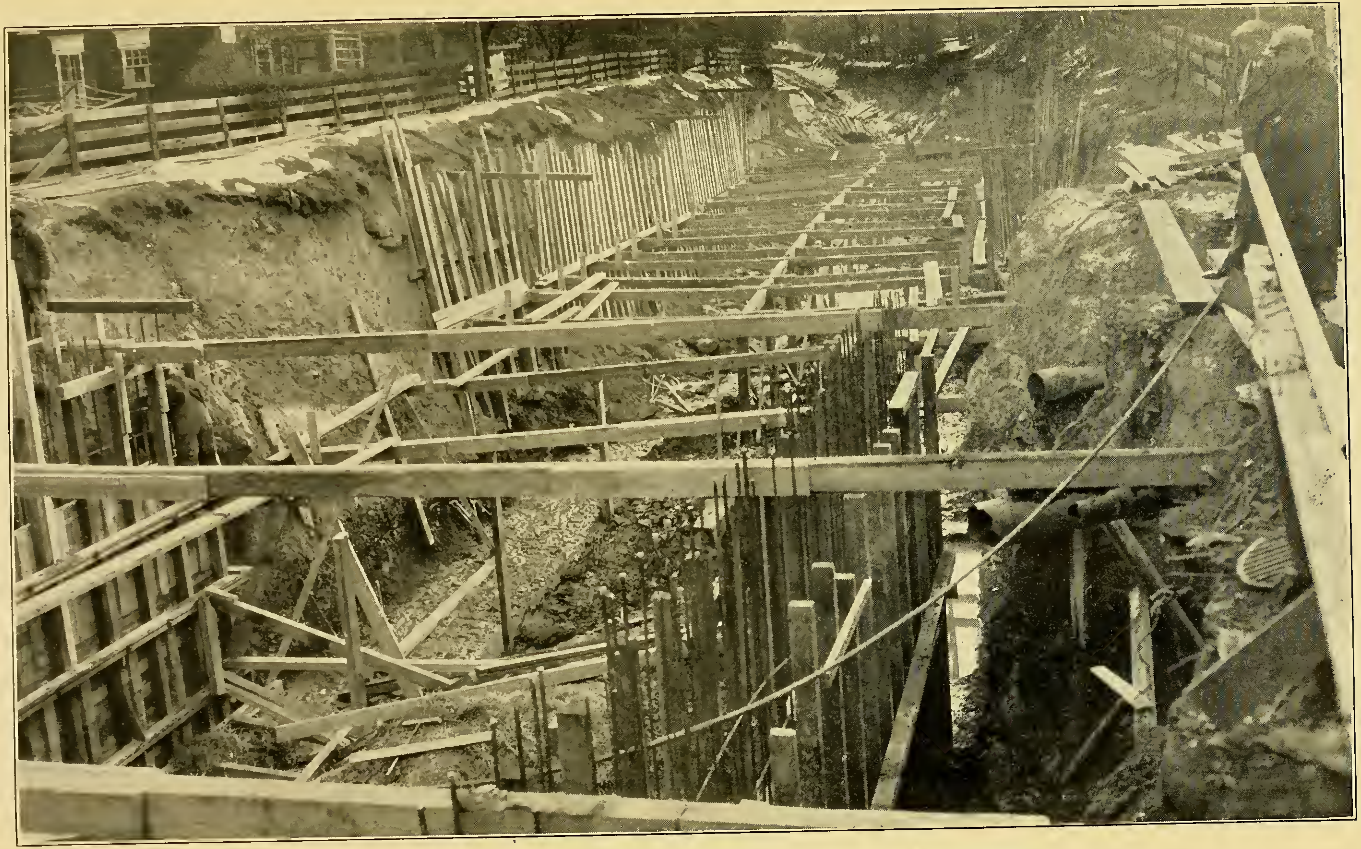

PLATE XI.—VIEW LOOKING SOUTH FROM PARK STREET.

Excavation has since been carried on between Park and Mather streets, also at the Shawmut Station and between Centre street and Welles avenue. About 30 per cent of the excavation has been completed to date.

Plate XI is a view of the excavation made south of Park street.

The relocation of sewers required on account of the rapid transit construction in the vicinity of Park and Waldeck streets has been in progress during the fall and winter. The sewer in Park street has been built to cross under the invert of the covered section, and has been rebuilt at a lower level than formerly, down Park street for a distance of about 200 feet to a manhole connecting with the old sewer at a point opposite Wellesley park. The new sewer is a 24-inch vitrified pipe encased in concrete which is suitably reinforced where it is under the Park street structure.

The roof of the covered section extends for a length of over 4,000 feet. It is not intended to carry heavy loads except at the five street crossings where the roof is designed as a highway bridge floor. The walls at these locations are also thicker than elsewhere and the sidewalks are designed with enclosures beneath them in which the public service pipes and conduits will be carried. While these bridges are to be made a monolithic part of the whole covered section, they are designed and constructed as if they were separate bridges, and are so referred to in this report.

The first one of the five bridges to be started was the Park street bridge. The walls and invert are finished and the steel roof, or bridge floor beams, have been set. Park street crosses the line of rapid transit structure at an angle of about 55 degrees. The bridge floor beams are placed parallel to the line of the street, spanning between the sidewalls. They are heavy girder beams and will be encased in concrete.

Plate XII is a view at this point and shows the erection of the bridge floor beams.

The floor slab will be of reinforced concrete and the roadway will have an additional two inches of concrete for a wearing surface.

The covered section throughout will have a concrete invert. The side walls will have refuge niches spaced fifteen feet on centers. The typical cross section is the same as the Dorchester

Excavation has since been carried on between Park and Mather streets, also at the Shawmut Station and between Centre street and Welles avenue. About 30 per cent of the excavation has been completed to date.

Plate XI is a view of the excavation made south of Park street.

The relocation of sewers required on account of the rapid transit construction in the vicinity of Park and Waldeck streets has been in progress during the fall and winter. The sewer in Park street has been built to cross under the invert of the covered section, and has been rebuilt at a lower level than formerly, down Park street for a distance of about 200 feet to a manhole connecting with the old sewer at a point opposite Wellesley park. The new sewer is a 24-inch vitrified pipe encased in concrete which is suitably reinforced where it is under the Park street structure.

The roof of the covered section extends for a length of over 4,000 feet. It is not intended to carry heavy loads except at the five street crossings where the roof is designed as a highway bridge floor. The walls at these locations are also thicker than elsewhere and the sidewalks are designed with enclosures beneath them in which the public service pipes and conduits will be carried. While these bridges are to be made a monolithic part of the whole covered section, they are designed and constructed as if they were separate bridges, and are so referred to in this report.

The first one of the five bridges to be started was the Park street bridge. The walls and invert are finished and the steel roof, or bridge floor beams, have been set. Park street crosses the line of rapid transit structure at an angle of about 55 degrees. The bridge floor beams are placed parallel to the line of the street, spanning between the sidewalls. They are heavy girder beams and will be encased in concrete.

Plate XII is a view at this point and shows the erection of the bridge floor beams.

The floor slab will be of reinforced concrete and the roadway will have an additional two inches of concrete for a wearing surface.

The covered section throughout will have a concrete invert. The side walls will have refuge niches spaced fifteen feet on centers. The typical cross section is the same as the Dorchester

Tunnel-Cambridge Subway as far as the interior clearances are concerned. The ceiling is fourteen feet and nine inches above the top of rail; the tracks will be a minimum of twelve feet on centers. There will be a minimum distance of six and one half feet from the center of each track to the face of the sidewalls.

SHAWMUT STATION.

The Shawmut Station is designed for a side platform station having platforms 300 feet long with provisions for a 135 foot future extension. Double stairways lead up from each platform to the headhouse, or entrance and exit building, on the roof above. The ticket offices, toilet rooms, etc., will be located in the headhouse, which will be accessible from Clementine park, or by sidewalks, direct from Centre street, Mather street and Melville avenue. The construction of this station, coming as it does, adjacent to a large building known as the Centre Street Garage, necessitated underpinning the walls of the garage to the depth of the new station structure, or about fifteen feet. The underpinning work was started early in the fall and has been completed, as has also the construction of the walls for the westerly stairways which are located under the building, where an easement was taken by the Department for the purpose.

Excavation for the station is about one half completed at this date.

Plate XIII is a view at Shawmut Station. The new underpinning wall placed under the garage may be seen on the left.

The station itself will have a reinforced concrete invert and reinforced concrete sidewalls built between steel columns. Interior structural steel columns and beams spaced about eight feet apart will support the reinforced concrete roof slab. The exterior of the roof, walls and invert will be waterproofed with a two-ply asphalt saturated fabric mopped on with hot asphalt. The waterproofing will have a three-inch concrete protection coating.

The removal of the old Shawmut railroad station was not included in the general contract for Section 3, as the Department wished to use the building for a field office. Arrangements were made to move it a few feet off the direct line of work and leave it on blocking until such time as it can be removed altogether. This work was done for the Department by T. Ahern's Sons.

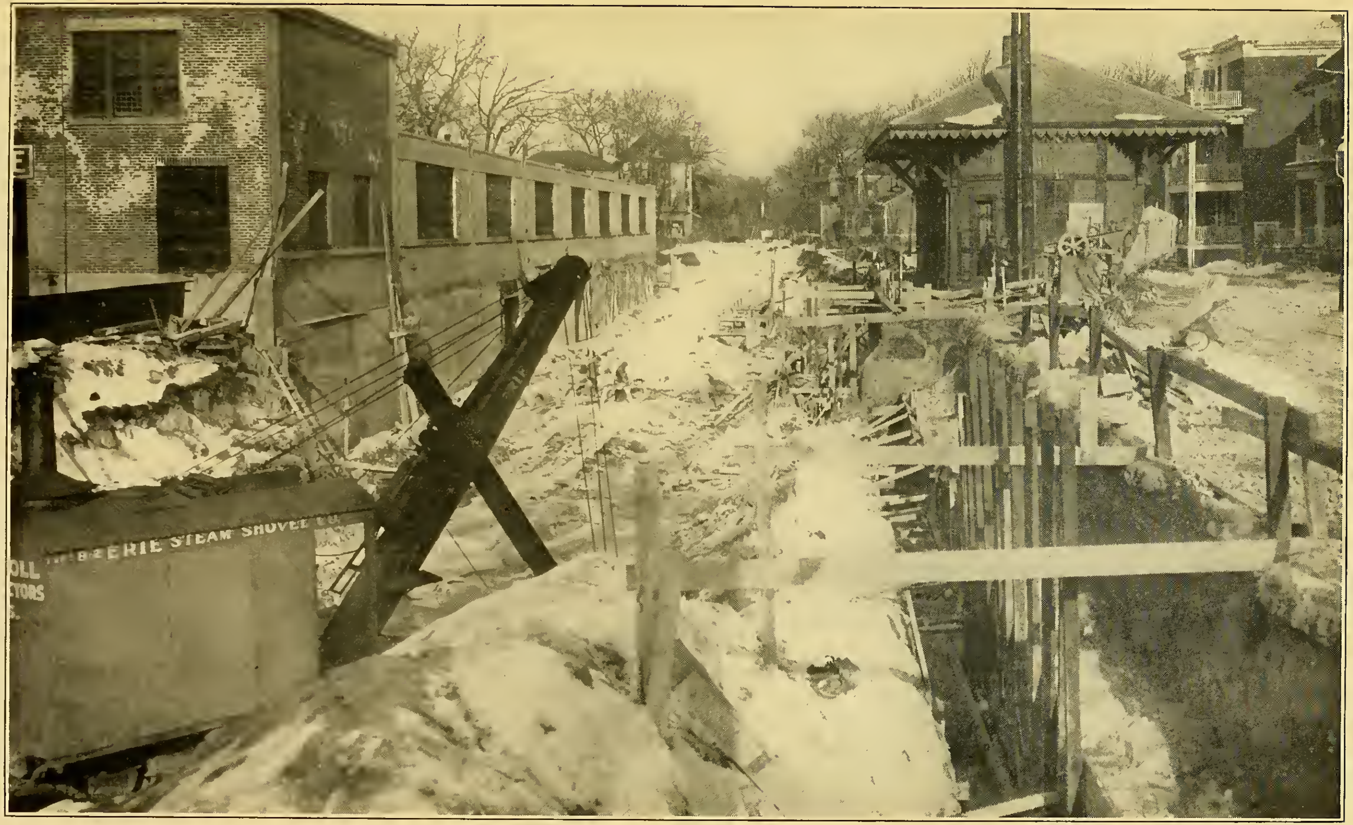

PLATE XIII.—EXCAVATION FOR NEW SHAWMUT STATION.
VIEW SHOWS NEW UNDERPINNING WALL UNDER GARAGE.

SECTION FOUR.

The work on this section has consisted thus far in preparing the site to receive the filling which has been brought from Sections 2 and 3.

The old Ashmont railroad was removed for the Department by the American Building Wrecking Company. The old buildings in the Codman street yard consisting of the City paving yard office, stables, and sheds were removed for the Department by the Barry Building Wrecking Company, Inc., after all materials of value had been transferred to other yards by the Public Works Department.

The old railroad tracks on a portion of Section 4 extending from the end of Section 3 at the north side of Peabody square to the north side of the Codman street bridge were removed and piled in the Codman street yard for the Department by John W. Pearson.

The new Codman street yard is located on the south side of Codman street adjacent to the Shawmut Branch. It will include not only the land used for the city paving yard but additional private land that will be taken by the Department for this purpose. The elevation of the old paving yard was for the most part much lower than that of the adjacent railroad embankment, and as previously explained, is being brought up to grade by filling obtained from Sections 2 and 3. One portion of the yard, however, was higher than the level established for the yard and quite an amount of excavation and grading was necessary to cut it down to the required grade. In leveling this part of the yard both earth and ledge were removed and deposited in the low land and hollows in the old paving yard.

A contract for this work was awarded on November 9 to J. C. Coleman & Sons Co., the lowest of seven bidders.

Two steam shovels and a number of trucks were used by the contractor. The ledge was stripped and blasted and the excavated material deposited in the yard and properly graded. The work included about 10,000 cubic yards of excavated earth and rock, and is practically finished at this date. This material together with the excavated materials that have been brought in from Sections 2 and 3 has filled the yard to the required elevation for approximately one half its area.

The new embankment required for the yard approach, just north of Codman street, is about one half completed at the present time.

CODMAN STREET BRIDGE.

The old railroad bridge over Codman street is a two track plate girder bridge spanning about forty feet between abutments. Under the original plans for the Dorchester Rapid Transit it was intended to alter and enlarge this bridge to a four track bridge to accommodate the two trolley and the two third rail tracks of the new rapid transit extension.

The passage of an act by the legislature in 1925 for the construction of the Southern Artery provided for the widening of Codman street, the work to be done by the Highway Division, Massachusetts Department of Public Works. The width of the roadway at the Codman street bridge will be increased from forty feet to eighty feet.

The widening of the street required a change in the Transit Department plans for this bridge, and under an agreement with the Massachusetts Department of Public Works the construction of the new bridge spanning eighty feet is included in the contract for this portion of the Southern Artery. Designs and plans were submitted to this Department for approval, the bridge being designed to carry the tracks for the rapid transit extension. The bridge will be built with three through plate girders, with heavy cross floor beams encased in concrete, supporting a solid concrete floor. This permits of ballasted tracks, the same as on all other bridges along the new rapid transit line. Work on this bridge is now progressing under J. C. Coleman & Sons Co., the contractors.

Thus far the embankment north of Codman street has been excavated and form work started for one of the new reinforced concrete abutments.

EQUIPMENT, DORCHESTER RAPID TRANSIT.

The Act authorizing the construction of the Dorchester Rapid Transit Extension differs from previous rapid transit legislation in that it requires that all equipment except rolling stock shall be provided by the Department. As the new line is an extension of the existing Dorchester Tunnel third rail service, plans have been made to continue the same type of track, signal and power supply construction adapting it for surface railway conditions. Part of the equipment material has been contracted for during the year, for delivery early in the coming year. The principal items of equipment thus far ordered and the firms to whom the contracts have been awarded are as follows:

2,143	tons Rail	Bethlehem Steel Company.
272.5	tons Malleable Iron Castings for Track Work	Albany Malleable Iron Company
78.6	tons Screw Spikes . .	Bethlehem Steel Company.
78,800	Rail Clips	Storms Drop Forging Company.
59.25	tons Rolled Steel . .	Bethlehem Steel Company.
123.85	tons Rolled Steel . .	Dilworth Porter Company.
33,200	Bolts with O. K. Nutlocks,	Lorain Steel Company.
26,972	Hard Pine Ties . .	George McQuesten Company.
91	M. Hard Pine Lumber	
39,250	feet Lead Covered Cable .	American Steel & Wire Company.

SECTION K, DORCHESTER TUNNEL.

PERMANENT PAVING, BOSTON STREET.

The construction of Section K, Dorchester Tunnel, had been carried on by the open cut method on Boston street, the excavation had been made from the street surface down to a depth of from 34 to 42 feet. The excavation was bridged over at the time with heavy timbers and plank flooring in a manner described in previous reports. This permitted the street to be kept open for vehicles and car traffic. After the subway structure was built, the opening was backfilled, the bridging removed and the surface temporarily paved with old granite blocks in order to allow time for the filling beneath to settle. Repaving was done from time to time during the ensuing year, until thorough settlement had taken place. A contract for permanent paving was then advertised and awarded to the John McCourt Company, the lowest of four bidders. The paving was a grouted granite block on a concrete base, with new granolithic sidewalks. One half of the roadway was paved at a time in order to keep one track and one side of the roadway open. The work was started September 27 and was finished on October 20.

PERMANENT PAVING, DORCHESTER AVENUE.

The construction of the new bridge spanning over the two rapid transit tracks and the new freight track which crosses under Dorchester avenue made it necessary to raise the grade of Dorchester avenue for a short distance south of the bridge.

Filling was placed and the street temporarily repaved to allow for final settlement. The depth of filling, however, was not great and it was possible, therefore, to do the permanent paving earlier in the year than that on Boston street. A contract was awarded to Coleman Bros., Inc., the lowest of five bidders, for paving with grouted granite blocks on concrete base. One half of the street and one track were paved at a time, the work being started on May 19 and finished on June 7.

TREMONT STREET SUBWAY.

New Pipe Crossing at Corner of Charles and Boylston Streets.

The Water Division of the Public Works Department found it necessary in the construction of a new water main in Charles street to have a pipe crossing built in the roof of the old Tremont street subway. Arrangements were made whereby this Department was to design and construct the pipe crossing, the cost to be borne by the Public Works Department.

Part of the roof of the old Tremont street subway had been cut off and joined into that of the new Boylston street subway when the new subway was constructed. The portion remaining, through which the pipe crossing was to be built, was constructed of steel beams with brick jack arches between, the arches being covered with concrete. It was planned to remove the jack arches and build the pipe crossing of reinforced concrete supported between the old steel roof beams.

The work was done by the Department's labor force and was finished during the summer. The old roof was cut out by the use of jack hammers operated with air supplied by a portable compressor. The new reinforced concrete pipe crossing was then built and waterproofed with two-ply asphalt saturated fabric, mopped on with hot asphalt. The waterproofing was protected with a three-inch concrete coating.

EAST BOSTON TUNNEL.

Repairs to the Superstructure of the Atlantic Avenue Station.

The superstructure of the Atlantic avenue tunnel station, usually referred to as the Atlantic Chamber, is a three-story building, the cornice of the roof being about ninety feet above the surface of State street. The building contains the eleva-

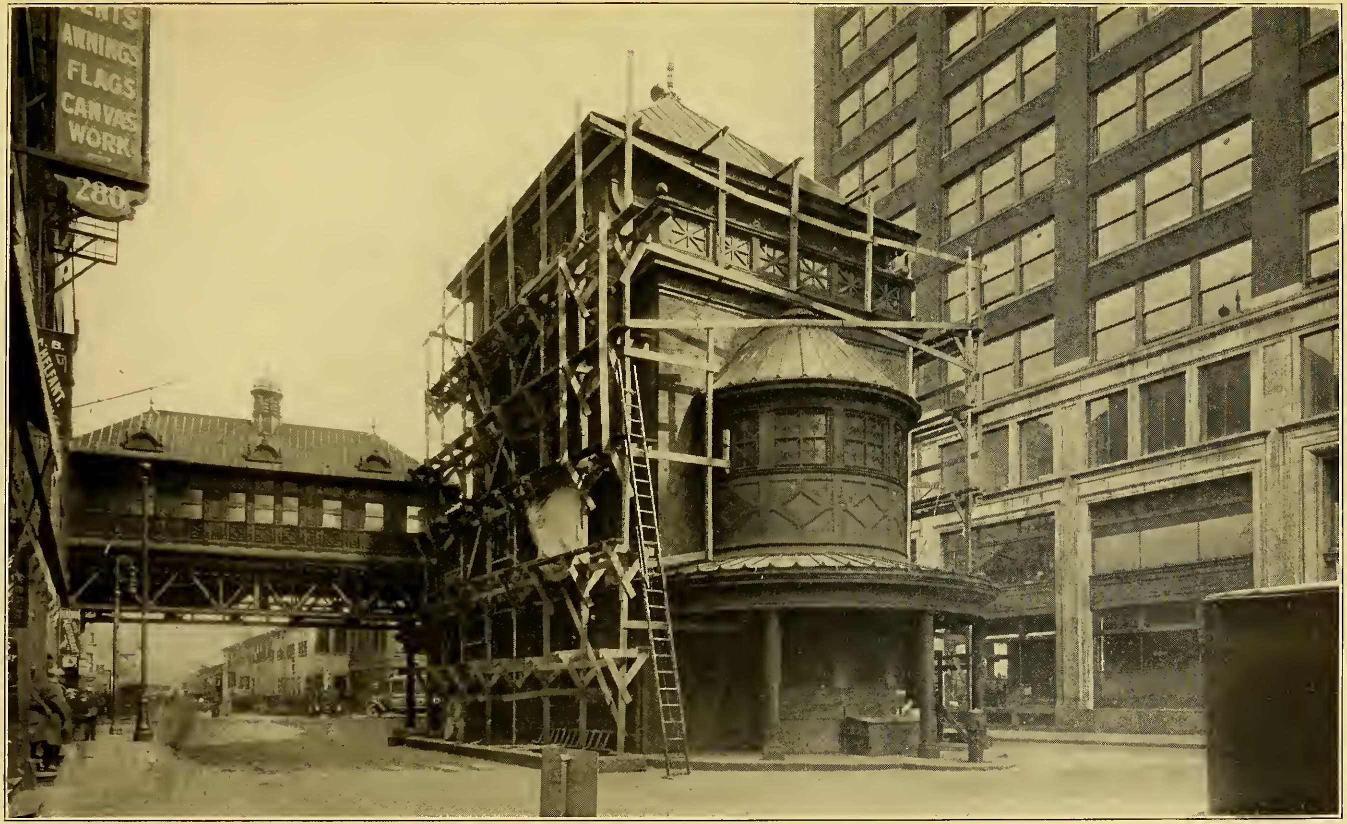

PLATE XIV.—REPAIRS TO SUPERSTRUCTURE, ATLANTIC AVENUE STATION OF THE EAST BOSTON TUNNEL.

tors and stairways running from the tunnel station platform up to the street level and also up to the second floor, at which level there is a bridge connecting the building with the State street elevated station. This structure was constructed about twenty-three years ago. It was built with a structural steel frame, to which was attached an inside and outside covering of steel furring and wire lath covered with cement plaster.

The exterior wall had disintegrated in places exposing the structural steel which showed signs of rust. The ornamental moldings, cap and sills around the windows had partly fallen away. It was necessary to first examine the steel framework and make any needed repairs. A staging, therefore, was erected by the Department's ironworkers. The staging was built so that the entire exterior could be reached from the street level to the roof gutter, and could be used later by plasterers and others in repairing and waterproofing the cement plaster. The steelwork was found to be in good condition except that it needed scraping and repainting where exposed. This work, together with repainting the grill work and repairing the gutter supports, was done by the ironworkers.

The exterior cement plaster wall was repaired and waterproofed by A. V. Day & Co. The exterior where cracked, especially at the corners, was cut away and after repairing the furring and metal lath, a new coat of Portland cement plaster, mixed in the proportion of one part cement and one part sand, was applied. The moldings, window sills, lintels, etc., were rebuilt using the same mixture. The walls from the street level up to the first floor were washed with a mixture composed of Portland cement, sand, hydrated lime and Medusa waterproofing compound. Above the first floor the building was re-stuccoed with a slap dash coating of the same mixture.

Plate XIV is a view of the Atlantic Chamber taken during the time that repairs were being made.

CYPHER STREET YARD, SOUTH BOSTON.

This yard has been described in previous reports. It has functioned during the year in receiving and distributing supplies and this year has been handling a larger amount of structural steel than for several years previous. Much of this steel has been fabricated in the steel shop located in the yard and part of it has been erected on the work by ironworkers sent out from the yard. The ironworkers have also done field work for other city departments on repairs on bridges. In order to handle all materials the yard was enlarged by leasing an additional amount of land from the N. Y., N. H. & H. R. R., but part of this land has since been required by the railroad for a spur track.

Laborers from the yard have tagged all cement used by contractors on various sections, and have also repaired leaks in the various subways and tunnels in the transit system.

The yard and shop have continued under the direct charge of Assistant Engineer Samuel C. Lyman.

TESTING MATERIALS.

Materials used on construction work and on equipment work have been tested where possible at the mills, or source of supply, as well as from samples taken in the field during construction.

Reinforcing rods, structural steel, rails and castings have been tested by the firm of Conard & Buzby. Chemical analysis of cement has been made by the firm of Skinner, Sherman & Esselen, Inc. Physical tests of samples of every lot of cement received have been made by Mr. Charles N. Ryan, Cement Tester, Public Works Department. Chemical and physical tests of waterproofing fabric and asphalt have been made by Mr. Hiram Y. Waterhouse, Chemist, Public Works Department.

ENGINEERING FORCE.

The engineering force has increased slightly in numbers during the year.

The death of Arthur B. Carter, Secretary to the Chief Engineer, occurred during the month of December. Mr. Carter had served in the same position under the two former Chief Engineers, and his faithful service covered a period of thirty-two years.

The names of those members of the Engineering Division employed for more than one month are given in Appendix F.

Respectfully submitted,

Ernest R. Springer,
Chief Engineer.

APPENDIX A.

THE COMMONWEALTH OF MASSACHUSETTS.

REPORT OF THE COMMISSION ESTABLISHED BY CHAPTER 44 OF THE RESOLVES OF 1926 "RELATIVE TO THE PURCHASE BY THE CITY OF BOSTON OF CERTAIN ELEVATED STRUCTURES USED BY THE BOSTON ELEVATED RAILWAY COMPANY."

[Street Railways and Metropolitan Affairs. Dec. 1, 1926.]

To the Honorable Senate and House of Representatives.

The General Court of 1926 passed the following resolve:

CHAPTER 44.

RESOLVE PROVIDING FOR AN INVESTIGATION BY AN UNPAID SPECIAL COMMISSION RELATIVE TO THE PURCHASE BY THE CITY OF BOSTON OF CERTAIN ELEVATED STRUCTURES USED BY THE BOSTON ELEVATED RAILWAY COMPANY.

Resolved, That an unpaid special commission, consisting of the chairman of the commission of the department of public utilities or a member of said commission designated by him, the chairman of the transit department of the city of Boston or a member of said department designated by him, and a member of the board of trustees of the Boston Elevated Railway Company designated by said board, hereinafter called the commission, is hereby established for the purpose of investigating the subject matter of current house document number eleven hundred and thirty-eight relative to the purchase by the city of Boston of elevated structures used by the Boston Elevated Railway Company within said city, and in connection with such investigation it shall consider ways and means of financing any action recommended. The commission may require by summons the attendance and testimony of witnesses and the production of books and papers before it relating to any matter under investigation, and any member thereof may issue such summonses and administer oaths to witnesses testifying before it. The commission shall report to the general court the results of its investigation and its recommendations, if any, together with drafts of such legislation as may be necessary to carry same into effect, by filing the same with the clerk of the senate not later than December first in the current year. The commission may expend for the purposes of this investigation such sum, not exceeding fifteen hundred dollars, as may be appropriated by the city of Boston out of the receipts in the treasury of said city.

[*Approved May 4, 1926.*

House Document No. 1138, reference to which is made in the above resolve, is entitled "An Act relative to the Purchase by the City of Boston and Conveyance by the Boston Elevated Railway Company of Elevated Structures within the Limits of said City." The said act is, however, broader in scope than its title. It provides:

1. For the purchase by the city of Boston of elevated structures of the Boston Elevated Railway Company within the city of Boston, together with stations and fixtures appurtenant thereto, and all lands or rights or interests therein acquired in connection with the construction of said elevated structures and the lease of the same to the Boston Elevated Railway Company.
2. For the purchase by the Commonwealth of Massachusetts of similar property owned by the Boston Elevated Railway Company outside of the city of Boston and the lease of the same to the Boston Elevated Railway Company.
3. For the construction of an extension of the Washington Street tunnel from Haymarket Square to Sullivan Square and the lease of the same to the Boston Elevated Railway Company.
4. Upon the completion of the tunnel extension, the discontinuance of the use of the elevated structures between Haymarket Square and Sullivan Square, Charlestown, and the removal of the same.

The Boston Elevated Railway Company owns all the elevated structures over which its service is operated. Their total length is about eleven miles. The first elevated division, that from Sullivan Square to the Tremont Street subway, was begun June 10, 1898, and the last elevated extension, that from Sullivan Square to Everett, was completed March 15, 1919. The elevated structures within the city of Boston comprise one section from the Boston–Everett line through Sullivan Square to the northerly end of the Tremont Street subway; a contiguous section from Keany Square via Atlantic Avenue to Castle Street; and a third contiguous section from the southerly end of the Tremont Street subway to Guild Street, Roxbury, and thence to Forest Hills;

appurtenant thereto are Sullivan Square, Guild Street and Forest Hills shops, storage and inspection yards; the first and third sections are connected with the Washington Street tunnel and these three sections are operated by trains taking power from a third rail. There is also in Boston a high speed surface car line with overhead trolley — known as the Cambridge viaduct route — from the northerly end of the Tremont Street subway to the Boston–Cambridge line on the Charles River Dam. As of June 30, 1926, the cost of those several sections as carried on the books of the Boston Elevated Railway Company was $26,469,212.88, divided as appears in the table subjoined.

Outside of the city of Boston there are two sections of elevated structures, continuations of sections above described, one from the Cambridge–Boston line on the Charles River Dam to Lechmere Square in the city of Cambridge, and the northerly end of the Forest Hills to Everett route between the Boston–Everett line and the Everett terminal. The properties permit through operation from Forest Hills to Everett but at the present time such service is operated via the Washington Street tunnel. Service via Atlantic Avenue is operated between the North Station and Dudley Street. The cost of those sections outside of the city of Boston as of June 30, 1926, according to the same books of account was $2,847,236.47, making a grand total cost in and outside Boston of $29,316,449.35, also shown in the following table. The grand total does not include the cost of the Lincoln Power Station which was acquired for the original elevated lines at a cost of $3,493,141.05.

Investment in Elevated Structures and Appurtenances, June 30, 1926.

[Bureau of Audit, December 1, 1926.]

	Land.	Abutters' Damages.	Structures.	Total.
Boston.				
Charlestown Division, Sullivan Square to Tremont Street subway.	$407,653 14	$1,077,412 60	$3,077,207 69	$4,562,273 43
Atlantic Avenue, Keany Square to Castle Street.	286,614 18	2,793,548 51	2,585,681 73	5,665,844 42
Roxbury Division, Guild Street to Tremont Street subway.	977,956 02	3,037,130 49	2,261,784 79	6,276,871 30
Forest Hills, Guild Street to Forest Hills Station.	—	1,074,147 67	1,880,185 18	2,954,332 85
Forest Hills, Forest Hills Station, Forest Hills shop.	155,802 20	24,681 32	843,620 49	1,024,104 01
East Cambridge extension . .	552,686 27	166,890 63	1,799,214 10	2,518,791 00
Everett extension	179,581 20	114,106 40	2,065,868 83	2,359,556 43
Southern approach, Washington Street tunnel.	892,312 21	—	139,999 80	1,032,312 01
Northern approach, Washington Street tunnel.	—	—	75,127 43	75,127 43
Total Boston	$3,452,605 22[1]	$8,287,917 62	$14,728,690 04	$26,469,212 88
Cambridge.				
East Cambridge extension . .	140,299 91	441,324 91	1,167,437 11	1,749,061 93
Everett.				
Everett extension (approx.) . .	234,256 84	—	863,917 70	1,098,174 54
Grand total, elevated structures and appurtenances.	$3,827,161 97	$8,729,242 53	$16,760,044 85	$29,316,449 35
Lincoln Power Station acquired for original elevated lines.	—	—	—	3,493,141 05
	—	—	—	$32,809,590 40

It is the opinion of this Commission that the apparent intention of the proponents of House Document No. 1138, to have the Commonwealth, or its agent the city of Boston, acquire the elevated structures owned by the Boston Elevated Railway Company, might under certain circumstances be accomplished with benefit both to the car-riding public and the Railway. The purchase of the elevated structures would not differ in character from the transaction in which the Commonwealth purchased the Cambridge subway in 1919, nor would the ownership be different from the present ownership by the city of the various subways in Boston. Subways and elevated lines are only special highways provided to relieve surface highways from some of the vehicles which otherwise would have to pass over them, and to afford a more rapid and safe right of way for those units of travel carrying the greatest number of travelers. As the government (whether State, city, county or town) finances highways upon the surface for the ordinary traveler when it is necessary to have additional highways, it seems quite logical that the government should finance the highway below and above the surface when needed. Whether a charge should correctly be made for the use of the special highway thus afforded need not be discussed here. In every such case at present the Railway does pay a rental. Also, whether one approves or disapproves the principle of government ownership of railroads or railways, it would seem that one might heartily approve the ownership of subways and elevated structures by the government when there is involved no operation of railways or railroads but merely the furnishing of facilities through or over which the Railway may operate. In this Commonwealth the policy of the State in relation to the Boston Elevated system would seem to have been declared in the acquisition of the Cambridge subway, the building of the Boston subways and the present construction by the city of Boston of the high speed surface route known as the Dorchester Rapid Transit extension.

---

[1] Cost of Everett Shop Land not included.

We believe the principle is logical and sound. It relieves the company from the necessity of supplying capital which is often difficult and expensive to the point of being prohibitive. It permits immediate construction of desired improvements when justified. It permits the sovereign with its better credit to meet the interest charges on the debt created to make the improvement and to extinguish the debt over a series of years with no greater annual cost to the private company than it would bear if it borrowed the money on its own credit and set nothing aside for payment of the principal loan. With the ultimate payment of the cost of all rapid transit facilities owned by the sovereign we assume the benefit will accrue to the car riders. If the elevated structures were added to the publicly owned rapid transit facilities and had been paid for from sinking funds so that no further rentals were necessary the saving to the people of the metropolitan area would be one cent on each fare paid on the Boston Elevated Railway, or between three and four million dollars a year.

It is estimated by the Railway that the cost of reproduction of these elevated structures today would be 225 per cent of the original cost. Much of the property is almost non-depreciable. Having in mind its possible obsolescence, however, it is estimated to have a useful life of seventy-five years. From the figures set forth in the above table relating to the cost of elevated structures and appurtenances owned by the Boston Elevated Railway Company it would seem under all circumstances that the fair value of those structures would be approximately $30,000,000 and we use that figure in our computations.

We have tried to have made a compilation of the cost to the Boston Elevated Railway Company of the capital which it secured to build those elevated structures. Only in part is such a tracing of funds possible. Investigation shows that the Elevated Railway is paying today an average of 5.4 per cent annually on all its capital, and that figure is adopted by us as the present cost to the Railway of the $30,000,000. That makes an annual carrying charge, exclusive of taxes, of $1,620,000. In addition to this carrying charge the present Board of Trustees makes an annual charge to the cost of service of $385,464.03 on account of depreciation of elevated structures, foundations, stations, repair shops, etc. We have not endeavored to ascertain the annual maintenance charge incurred by the Railway Company in maintaining structures and maintaining and renewing track thereon, but it is well known that the Railway maintains the elevated divisions in a high degree of efficiency in the interest of safety, and whether the Railway operates the elevated structures as owner or as lessee after the State and city has purchased them, the cost of maintenance would be substantially the same. House Document No. 1138 provides that if the elevated structures are acquired by the State and leased to the Elevated Railway, the Railway shall pay a rental equivalent to the interest on the bonds issued to purchase the structure plus one-half of one per cent (but in no case the two to be less than 4½ per cent) and in addition thereto a rental of 1½ per cent which shall be used as a sinking fund to retire the purchase money bonds. The carrying charge on the capital involved and the annual depreciation cost the Railway Company today $2,005,464.03. If the structures were acquired by the government and a rental of 6 per cent (the minimum provided in House Bill No. 1138) were charged to the Railway Company, we estimate the annual rental would amount to $1,800,000 until the purchase loan could be paid from the sinking fund, to wit, about twenty-seven years.

Under this state of facts the car rider would annually save and thus have for additional service $205,464.03; and if the purchase money cost 4 per cent to borrow, the debt would be paid in twenty-seven years from the sinking fund accumulations invested at 4 per cent — well within the life of the property. Thereafter $1,800,000 (the rental) should be a further saving to the public. If the Railway were charged less rental than provided in House Document No. 1138, namely, 5 per cent,— an amount sufficient to meet the interest on the purchase bonds and a less annual charge for sinking fund retirement of those bonds,— the annual rental of the elevated structures would be $1,500,000. Under this state of facts the annual saving to the car rider would be $505,464.03, and forty-one years would be required to pay the purchase money debt if the difference of 1 per cent on $30,000,000 is compounded semi-annually at 4 per cent.

In either case there is a real saving in operating expense over today's cost of service and an economic gain in the payment of the debts from sinking funds.

The saving to the car riders does not stop there. House Document No. 1138 apparently contemplates the purchase money, which we estimate at about $30,000,000, shall be expended for new property as approved by the Department of Public Utilities. We believe the Railway needs no such large amount of new capital at once and greater benefit would arise from retirement of some securities of the Railway. The Company has outstanding about $47,000,000 stock paying 6, 7 and 8 per cent dividends. While only $3,000,000 of that is callable, namely, the 7 per cent preferred, we believe any legislation should be conditional on a certain other portion of the stock, preferably the 7 and 8 per cent stocks being retired at prices to be fixed. In that event the saving by the elimination of 7 and 8 per cent dividends and the lowering of the average cost of the Railway's capital remaining outstanding, with the saving in taxes — real estate and franchise — would yield a sum exceeding $500,000 which would be a real benefit to the operation of the Railway. To the extent that taxes would be lost it would be only a shifting of the burden from the car rider to the general taxpayer. It would, however, permit the Board of Public Trustees to undertake worthy improvements in service which today lack of operating revenue forbids. In fact, if this plan could be accomplished it would, in our opinion, be a solution of the present problems relating to the Elevated Railway system.

In this connection legislation would be necessary permitting the refunding of bonds of the Railway in the sum now outstanding though in excess of the stock which would be outstanding after the retirement process outlined above had been carried out. If the public control is to continue no real harm to bondholders would come from the change of proportion between stocks and bonds.

House Document No. 1138 provides that the company shall use part of the purchase money to repay the deficit incurred in the first year of public operation. By virtue of chapter 159 of the Special Acts of 1918, the Commonwealth was given the right to manage and operate the Elevated properties, was to have the benefit of any profit which accrued, and agreed to bear any loss in operation incurred while under its management. We see no justification for now asking the lessors of this property to sell part of their capital assets to make good any loss incurred during public operation. If capital assets are to be sold the entire proceeds should be used either to retire the capital issued to pay therefor or in acquiring other capital assets to replace those which are sold.

It has been urged that less than all the elevated structures owned and operated by the Boston Elevated Railway Company might at this time be acquired, reference being made particularly to the Atlantic Avenue loop, so called, from Keany Square to Castle Street. This section of the elevated cost $5,665,844.42. From an operating standpoint its prime usefulness is as an alternative route for the main line from Everett to Forest Hills in case of interruption of service in the Washington Street tunnel. If retention of the Atlantic Avenue loop were not desirable for such emergency use and the Railway could abandon that portion of the elevated structure, it is estimated that improved through service between Everett and Forest Hills could be furnished at an annual saving of $200,000. The purchase of the Atlantic

Avenue structure alone would be for other than Railway uses, we assume. Whether a profitable use of the Atlantic Avenue loop for other than Railway purposes warranting the purchase thereof by the city can be found, is, we believe, outside the scope of this investigation, and reference to the subject is made here only to record our belief that it is not necessary to retain it for the proper operation of the Boston Elevated Railway. Against such a sale it is urged that the surface routes operated by the Boston Elevated Railway naturally subdivide into two divisions, one south and one north of Boston, and that the Atlantic Avenue loop connecting the elevated structures used with the Washington Street tunnel forms the only physical connection between the northern and southern surface divisions, and that the retention of that structure is, therefore, necessary to maintain the strategic position of the Railway Company at such time as its present leases to subways and tunnels expire. We do not believe that such argument furnishes a cogent reason for retaining the whole fabric of elevated structures if all can be sold by the Company. Unless all structures are sold parting with the middle section might render the elevated sections on either side of it and the surface lines less valuable. Transportation for the large metropolitan area is of such vital importance to all, we believe, that a fair and just basis is bound to be reached if any problems arise in the future between the sovereign owning the rapid transit thoroughfares and the transportation company owning all the rolling stock and surface lines in that territory. Public opinion would not countenance the abuse by either of its power.

The proposed bill provides that the leases to the Railway shall be for a definite term of only nine years. We believe that if this project or any modification of it were carried out the definite term of the leases should be at least as long as the period of time required to accumulate a sinking fund sufficient to retire the bonds issued to pay for the property, — that is, a term of forty-one years if 1 per cent were annually accumulated, or twenty-seven years if 2 per cent were accumulated.

The other matter dealt with by House Document No. 1138 is the substitution of a subway for the Charlestown section of the elevated structure. It was said in House

Document No. 17 of 1924 that the construction is entirely practicable. No argument is necessary to prove the superiority of a subway over the existing elevated. The appearance of the district traversed would be improved. We believe the value of property near by would be enhanced. The capacity of the traveled part of the highway would be largely increased and the chances of accidents diminished. And from an operating standpoint advantages would accrue; maintenance charges in a subway would be less; and, most important of all, greater regularity of service and freedom from accompanying delays could be secured. This most important artery of travel between north and south over the Charlestown Bridge is now subject to frequent interruptions by openings of the draw. There are fourteen hundred openings per year. The average delay is eight to twenty minutes. Prolonged delay requires rerouting of trains between Forest Hills and North Station via Atlantic Avenue loop. Service regularity once interrupted through the Washington Street tunnel may require twenty-three minutes before normalcy is reproduced. Each opening of the draw disrupts service much longer than the actual opening. The Forest Hills storage yards at a cost of over $1,000,000 were built in part to counteract accidents to this Charlestown Bridge which might pen much of the elevated rolling stock at Sullivan Square and Everett and thus deprive passengers of the use of the Washington Street tunnel service for a considerable period. With regularity assured in the Washington Street tunnel by elimination of drawbridge openings much would have been done to improve tunnel service and some operating saving would result. In short, everything is in favor of a subway rather than an elevated except cost. We are informed the cost of a three-station, two-track subway connecting the Tremont Street subway with the Everett extension elevated structure beyond Sullivan Square would cost $15,000,000. Do the advantages warrant the expenditure of such a sum at the present time? We believe not at the car riders' expense. Although we have shown how savings could be made sufficient to pay subway rentals on such a new subway, we cannot believe savings should be used in that way. If a subway is to be built to Sullivan Square, in our judgment a substantial portion of the cost of amortizing and carrying the debt should be borne by owners of all the real estate specially benefited thereby. As soon as the demand for removal of one section of the elevated were met, we believe other sections could and would demand the same treatment. Still more positive is the answer "No" when the same question is answered as to full substitution. The cost to replace with subways all the elevated structures in and out of Boston is estimated $70,000,000. To destroy existing facilities and spend anything like that amount while such pressing requirements exist as confront the district for rapid transit development seems unwise and not in the interest of the greatest number. We believe other rapid transit improvements should take precedence. It is necessary to catalogue only the most important demands:

1. Rapid transit extension from Governor Square to permit training the Boylston Street subway to a point west.
2. Station at Charles and Cambridge Streets.
3. Huntington Avenue extensions for Jamaica Plain and Brookline Village service.
4. Extensions from Lechmere Square to Somerville, North Cambridge and Arlington.
5. Maverick Square to Day Square, East Boston.
6. Extensions north from Everett Station to Everett and Malden.

We believe the community at the present time and in the near future cannot afford to destroy all the elevated structures or any part required for rapid transit. It is unnecessary to take space to repeat the reasons for this conclusion found in House Documents No. 2116 of 1919 and No. 17 of 1924. What was true then is true now with today's increased cost.

HENRY C. ATTWILL.
THOMAS F. SULLIVAN.
STANLEY R. MILLER.

December 1, 1926.

APPENDIX B.

Year ending December 31, 1926.

The names of those who have been employed in the Engineering Division for more than one month during the period covered by this report are given below, together with an indication of the principal work upon which they have been engaged.

Wilbur W. Davis, *Assistant Chief Engineer.* In general charge of construction.

Leonard B. Howe, *Designing Engineer.* In general charge of designing.

Assistant Engineers.

Thomas N. Ashton. Designs and details for structural steel, Dorchester Rapid Transit.

John A. Berrigan. Track alignment calculations, land takings, detail plans, etc., Dorchester Rapid Transit.

Thomas A. Berrigan. Plans and designs for Dorchester Rapid Transit and calculations for Charles Street Station.

Ralph F. Boudreau. Lines and grades, Sections 1 and 3, Dorchester Rapid Transit.

James D. Burns. Plans and designs for steelwork, Dorchester Rapid Transit.

Harry T. Carroll. Track alignment calculations, land takings, detail plans, etc., Dorchester Rapid Transit.

John J. Cummings. Track alignment calculations and detail plans, Dorchester Rapid Transit.

Lester S. Daniels. Supervision of lines, grades and estimates, Sections 1, 2, 3 and 4, Dorchester Rapid Transit.

Joseph P. Dever. Studies, specifications and estimates for Dorchester Rapid Transit. In charge of paving contracts, Section K, Dorchester Tunnel. In charge of repairs, Atlantic Avenue Station, East Boston Tunnel.

Robert B. Farwell. Supervision of surveys and construction of Section 2, Dorchester Rapid Transit.

Ralph A. Fisher. Designs and details of structural steel and reinforced concrete, Dorchester Rapid Transit.

Louis J. Harrigan. Track alignment calculations, taking plans, studies and detail plans for sewers for Dorchester Rapid Transit.

Herbert D. Hurley. Track alignment calculations, taking plans, detail plans, design and details for structural steel for Dorchester Rapid Transit.

William W. Lewis. Supervision of surveys and construction, Section 1, Dorchester Rapid Transit.

BENJAMIN A. LOVELAND. Designs and details for structural steel and reinforced concrete structures, Dorchester Rapid Transit, and for Charles Street Station.

SAMUEL G. LYMAN. In charge of stockyard and steel shop at Cypher street.

ARTHUR V. LYNCH. Supervision of track alignment calculations, taking plans, designs and detail plans for Dorchester Rapid Transit.

HARRY H. LYNN. Plans and details, Dorchester Rapid Transit.

PATRICK F. O'BRIEN. Estimates and specifications for Dorchester Rapid Transit.

HARRY F. SAWTELLE. Supervision of designs and details for structural steel and reinforced concrete structures, Dorchester Rapid Transit and for Charles Street Station.

HERBERT R. STEARNS. Supervision of track alignment calculations, taking plans, designs and detail plans for Dorchester Rapid Transit.

LEO S. STONE. Supervision of escalator alterations, studies, estimates and specifications for construction, Dorchester Rapid Transit. Supervision of specifications and contracts for equipment, Dorchester Rapid Transit.

EDWARD SULESKY. Designs and details for structural steel and reinforced concrete structures for Dorchester Rapid Transit, and for Charles Street Station.

ARTHUR W. VOSE. Track alignment calculations, taking plans, detail plans, etc., Dorchester Rapid Transit.

DAVID B. WEDEN. Track alignment calculations, designs and details for structural steel and reinforced concrete structures for Dorchester Rapid Transit and for Charles Street Station.

Assistant Engineer and Inspector.

FREDERICK C. H. EICHORN. Supervision of surveys and construction, Section 3, Dorchester Rapid Transit.

Draftsmen.

EDMUND A. BARRETT. Plans, lines and grades, Dorchester Rapid Transit.

WALTER H. BARRETT. Lines and grades, Dorchester Rapid Transit.

BORIS BERESTNEFF. Plans and details for Dorchester Rapid Transit and for Charles Street Station.

HENRY L. DONOVAN. Taking plans and steel details for Dorchester Rapid Transit and for Charles Street Station.

* ARTHUR DUNLEVY. Plans and details for Dorchester Rapid Transit.

ROBERT D. GARDNER. Plans and details for Dorchester Rapid Transit.

JOHN F. HOWARD. Plans and details for Dorchester Rapid Transit.

RALPH A. PLUNKETT. Plans and details for Dorchester Rapid Transit.

KARL R. SAUNDERS. Plans and details for Dorchester Rapid Transit and for Charles Street Station.

Transitmen.

PATRICK H. BOYLE. Surveys, Section 2, and lines and grades, Section 1, Dorchester Rapid Transit.

---

* Left the employ of the Transit Department.

THOMAS E. CARNEY. Surveys, Sections 3 and 5, and lines and grades, Section 2, Dorchester Rapid Transit.

MICHAEL S. FOGARTY. Estimates, Section 2, Dorchester Rapid Transit.

* FREDERICK W. GOW. Lines and grades, Section 1, Dorchester Rapid Transit.

GEORGE G. HYLAND. Lines and grades, Section 2, Dorchester Rapid Transit.

JOHN M. KENNEY. Plans and details for Dorchester Rapid Transit and for Charles Street Station.

ALBERT I. MCDERMOTT. Plans and details for Dorchester Rapid Transit.

FRANK A. RULL. Photography and blueprinting.

FREDERIC W. STILES. Care of plans, survey records, etc., general office work.

FRANCIS D. SULLIVAN. Lines and grades, Section 1, Dorchester Rapid Transit.

Rodmen.

ROBERT S. BOWES. Lines and grades, Section 1 and 3, Dorchester Rapid Transit.

* JOSEPH E. BURKE. Lines and grades, Section 1, Dorchester Rapid Transit.

PAUL J. CANTY. Lines and grades, Section 3, Dorchester Rapid Transit.

JOHN P. CROTTY, JR. Tracings, Dorchester Rapid Transit.

STEPHEN C. DESROCHE. Lines and grades, Section 2, Dorchester Rapid Transit.

MICHAEL J. DRISCOLL. Lines and grades, Sections 1 and 3, Dorchester Rapid Transit.

JOSEPH F. HIGGINS. Lines and grades, Section 1, Dorchester Rapid Transit.

JOHN J. RYAN. Lines and grades, Section 1, Dorchester Rapid Transit.

* WILLIAM J. WOODFORD. Surveys, Sections 3 and 5, Dorchester Rapid Transit.

Inspectors and Others.

THOMAS H. ARMSTRONG. Inspection, Sections 1 and 2, Dorchester Rapid Transit.

JOHN DOHERTY. Inspection, Sections 1 and 3, Dorchester Rapid Transit.

JAMES F. DRISCOLL. Inspection, Sections 1 and 2, Dorchester Rapid Transit.

WILLIAM J. DRUMMOND. Inspection, Section 1, Dorchester Rapid Transit.

JOHN J. FALLON, JR. Inspection, Sections 1 and 3, Dorchester Rapid Transit.

JOHN L. GEOGHEGAN. Inspection, Section 1, Dorchester Rapid Transit.

JOSEPH J. JOLLEY. Inspection, Sections 1, 3 and 4, Dorchester Rapid Transit.

AUSTIN E. JOYCE. Inspection, Section 4, Dorchester Rapid Transit. Grouting, Boylston Street Subway and Dorchester Tunnel.

---

* Left the employ of the Transit Department.

THOMAS H. KEENAN. Inspection, Section 2, Dorchester Rapid Transit. Construction, Pipe Crossing, Tremont Street Subway.

STEPHEN V. MCHALE. Inspection, Sections 1 and 2, Dorchester Rapid Transit.

EMANUEL N. REINHALTER. Inspection, Dorchester Rapid Transit.

JOSEPH E. REINHALTER. Inspection, Section 1, Dorchester Rapid Transit.

GEORGE E. SULLIVAN. Construction Accounts.

JAMES E. WARD. Inspection, Section 1, Dorchester Rapid Transit.

Clerical Force.

JOHN J. BRADLEY. Clerk, Timekeeping.

ARTHUR B. CARTER.† Secretary to the Chief Engineer.

KATHERINE I. DRISCOLL. Clerk and Stenographer.

JOHN J. FARREN. Construction Cost Accountant.

MARY E. MCKERNAN. Clerk.

MABEL A. MURPHY. Stenographer.

THOMAS J. MULDOON. Clerk and Stenographer at Cypher Street Stockyard.

HENRY F. HORADAN. Blueprinting.

WILLIAM J. SKIFFINGTON. Blueprinting, Photography, etc.

RICHARD F. TOBIN. Field Work, Dorchester Rapid Transit.

---

† Died.

APPENDIX C.

BIDS FOR FURNISHING CERTAIN ELECTRICAL EQUIPMENT FOR HARRISON SUB STATION, DORCHESTER RAPID TRANSIT. APRIL 27, 1926.

BIDDER.	Price.	Complete in
General Electric Company *	$92,150	210 days
Westinghouse Electric & Manufacturing Co.	94,100	200 "

* Awarded. Contract 798.

APPENDIX D.

BIDS FOR RELAYING GRANITE BLOCK PAVEMENT IN DORCHESTER AVENUE NEAR POWER STREET, SECTION K, DORCHESTER TUNNEL. MAY 11, 1926.

BIDDER.	Estimated Price.	Time.
Samuel J. Tomasello	$3,271.50	20 days
John McCourt Co	3,254.25	30 "
A. DeStefano	3,239.75	30 "
Ormac Co	3,193.45	20 "
Coleman Bros., Inc.*	3,155.00	20 "

* Awarded. Contract 797.

APPENDIX E.

BID FOR FURNISHING AND DELIVERING F. O. B. CARS, 14 CYPHER STREET, SOUTH BOSTON, 350 TONS, MORE OR LESS, OF STEEL BEAMS. JULY 27, 1926.

BIDDER.	Estimated Price.	Time.
Bethlehem Steel Co.*	$16,575.51	60 days.

* Awarded. Contract 799.

APPENDIX F.

BID FOR FURNISHING AND DELIVERING F. O. B. CARS, 14 CYPHER STREET, SOUTH BOSTON, 700 TONS, MORE OR LESS, OF STEEL BEAMS. AUGUST 4, 1926.

BIDDER.	Estimated Price.	Time.
Bethlehem Steel Co.*	$35,580.94	60 days

* Awarded. Contract 801.

APPENDIX G.

BID FOR FURNISHING AND DELIVERING, F. O. B. CARS, 14 CYPHER STREET, SOUTH BOSTON, 135 TONS, MORE OR LESS, OF STRUCTURAL STEEL, CONSISTING OF PLATES, ANGLES AND CHANNELS. AUGUST 4, 1926.

BIDDER.	Estimated Price.	Time.
Bethlehem Steel Co.*	$6,693.57	30 to 45 days

* Awarded. Contract 802.

APPENDIX H.

BIDS FOR FURNISHING AND DELIVERING, F. O. B. CARS, 14 CYPHER STREET, SOUTH BOSTON, 20,000 LINEAR FEET, MORE OR LESS, OF $3\frac{1}{2}$-INCH FIBRE CONDUIT, EXTRA COUPLINGS AND BENDS. AUGUST 10, 1926.

BIDDER.	Estimated Price.	Time.
Graybar Electric Company	$2,435.49	7 days
Johns-Manville, Inc.*	2,435.49	10 "

* Awarded. Contract 803.

APPENDIX I.

CANVASS OF BIDS FOR SECTION 2, DORCHESTER RAPID TRANSIT, AUGUST 17, 1926.

BIDDERS AND ADDRESSES	a	[illegible]	b	2b	3b		2c	3c
	Earth Excavation 25,000 Cu. Yds.	Rock Excavation 50 Cu. Yds.	Stone Masonry Removed 420 Cu. Yds.	Concrete and Other Masonry Removed 725 Cu. Yds.	Reinforced Concrete Masonry Removed 10 Cu. Yds.	Concrete 6,000 Cu. Yds.	Small Stone Concrete 100 Cu. Yds.	Cinder Concrete 50 Cu. Yds.
A. James Grande, 22 Hull St., Boston	$3 00 75,000 00	$15 00 750 00	$5 00 2,100 00	$15 00 10,875 00	$25 00 250 00	$27 00 162,000 00	$30 00 3,000 00	$15 00 750 00
Reynolds Bros., Inc., 179 Summer St., Boston	3 00 75,000 00	10 00 500 00	8 00 3,360 00	10 00 7,250 00	60 00 600 00	20 00 120,000 00	30 00 3,000 00	18 00 900 00
Paul Caputo, 383 Hanover St., Boston	2 00 50,000 00	7 50 375 00	6 00 2,520 00	30 00 21,750 00	50 00 500 00	22 00 132,000 00	20 00 2,000 00	14 50 725 00
J. C. Coleman & Sons Co., 1020 Tremont St., Roxbury	1 75 43,750 00	10 00 500 00	5 00 2,100 00	10 00 7,250 00	50 00 500 00	27 50 165,000 00	25 00 2,500 00	15 00 750 00
M. F. Gaddis, 6 Beacon St., Boston	2 75 68,750 00	8 00 400 00	4 50 1,890 00	7 00 5,075 00	40 00 400 00	25 00 150,000 00	25 00 2,500 00	15 00 750 00
James J. Coughlan & Sons, Inc., 27 School St., Boston	1 95 48,750 00	8 00 400 00	7 00 2,940 00	11 50 8,337 50	25 00 250 00	21 00 126,000 00	22 00 2,200 00	15 00 750 00
Coleman Bros., Inc., 245 State St., Boston	3 40 85,000 00	8 00 400 00	5 00 2,100 00	8 00 5,800 00	30 00 300 00	19 00 114,000 00	25 00 2,500 00	10 00 500 00
C. & R. Construction Co., 75 Bradeen St., Roslindale	2 00 50,000 00	1 00 50 00	10 00 4,200 00	10 00 7,250 00	10 00 100 00	21 00 126,000 00	21 00 2,100 00	8 00 400 00
Simpson Bros. Corp., 77 Summer St., Boston	1 75 43,750 00	10 00 500 00	5 00 2,100 00	8 00 5,800 00	50 00 500 00	22 00 132,000 00	23 00 2,300 00	10 00 500 00
A. G. Tomasello & Son, Inc., 65 Devonshire St., Boston	1 25 31,250 00	10 00 500 00	3 00 1,260 00	8 00 5,800 00	20 00 200 00	16 50 99,000 00	15 00 1,500 00	12 00 600 00

BIDDERS AND ADDRESSES	4c	[illegible]	6c	7c	d	e	2e	[illegible]
	Mortar 100 Cu. Yds.	Concrete Roadway Finish 2,500 Sq. Yds.	Granolithic Finish 300 Sq. Yds.	Granolithic Walks 800 Sq. Yds.	Brick Masonry 100 Cu. Yds.	Vitrified Pipe 4"-6"-8" 1,000 Lin. Ft.	Vitrified Pipe 10"-12" 1,000 Lin. Ft.	Vitrified Pipe 15" to 24" 100 Lin. Ft.
A. James Grande, 22 Hull St., Boston	$25 00 2,500 00	$1 00 2,500 00	$1 75 525 00	$4 50 3,600 00	$40 00 4,000 00	$2 00 2,000 00	$2 25 2,250 00	$5 00 500 00
Reynolds Bros., Inc., 179 Summer St., Boston	35 00 3,500 00	0 50 1,250 00	1 50 450 00	3 00 2,400 00	50 00 5,000 00	1 00 1,000 00	1 15 1,150 00	3 00 300 00
Paul Caputo, 383 Hanover St., Boston	20 00 2,000 00	2 00 5,000 00	1 50 450 00	3 00 2,400 00	35 00 3,500 00	1 00 1,000 00	1 25 1,250 00	5 00 500 00
J. C. Coleman & Sons Co., 1020 Tremont St., Roxbury	25 00 2,500 00	0 75 1,875 00	2 00 600 00	5 00 4,000 00	45 00 4,500 00	1 50 1,500 00	2 50 2,500 00	5 00 500 00
M. F. Gaddis, 6 Beacon St., Boston	25 00 2,500 00	0 50 1,250 00	1 35 405 00	3 25 2,600 00	45 00 4,500 00	1 00 1,000 00	1 50 1,500 00	1 50 150 00
James J. Coughlan & Sons, Inc., 27 School St., Boston	20 00 2,000 00	2 50 6,250 00	1 50 450 00	3 00 2,400 00	45 00 4,500 00	1 50 1,500 00	2 00 2,000 00	5 00 500 00
Coleman Bros., Inc., 245 State St., Boston	20 00 2,000 00	0 10 250 00	0 90 270 00	3 00 2,400 00	40 00 4,000 00	0 80 800 00	1 00 1,000 00	1 00 100 00
C. & R. Construction Co., 75 Bradeen St., Roslindale	18 00 1,800 00	0 10 250 00	1 00 300 00	3 50 2,800 00	30 00 3,000 00	1 00 1,000 00	2 00 2,000 00	3 00 300 00
Simpson Bros. Corp., 77 Summer St., Boston	25 00 2,500 00	0 80 2,000 00	2 00 600 00	3 50 2,800 00	45 00 4,500 00	1 00 1,000 00	1 20 1,200 00	3 00 300 00
A. G. Tomasello & Son, Inc., 65 Devonshire St., Boston	30 00 3,000 00	1 00 2,500 00	1 00 300 00	2 50 2,000 00	40 00 4,000 00	0 50 500 00	0 60 600 00	2 00 200 00

BIDDERS AND ADDRESSES	f	2f	3f	g	2g	3g	h	i	k
	Reinforcing Rods and other Steel and Iron 300 Tons	Structural Steel 350 Tons	Wire Cloth 7,000 Sq. Ft.	Plaster 100 Sq. Yds.	Grout 1-1½ 50 Cu. Yds.	Grout 1-4 50 Cu. Yds.	Waterproofing 4,000 Sq. Yds.	Removing Present Freeman St. Bridge Lump Sum	Supporting Structures, Etc. Lump Sum
A. James Grande, 22 Hull St., Boston	$110 00 33,000 00	$50 00 17,500 00	$0 12 840 00	$1 20 120 00	$30 00 1,500 00	$20 00 1,000 00	$1 40 5,600 00	$3,800 00	$2,000 00
Reynolds Bros., Inc., 179 Summer St., Boston	120 00 36,000 00	60 00 21,000 00	0 25 1,750 00	0 50 50 00	40 00 2,000 00	33 00 1,650 00	0 75 3,000 00	3,000 00	10,000 00
Paul Caputo, 383 Hanover St., Boston	100 00 30,000 00	80 00 28,000 00	0 20 1,400 00	1 00 100 00	16 00 800 00	12 00 600 00	1 15 4,600 00	4,000 00	5,000 00
J. C. Coleman & Sons Co., 1020 Tremont St., Roxbury	85 00 25,500 00	30 00 10,500 00	0 20 1,400 00	1 50 150 00	25 00 1,250 00	20 00 1,000 00	1 00 4,000 00	2,000 00	15,000 00
M. F. Gaddis, 6 Beacon St., Boston	100 00 30,000 00	40 00 14,000 00	0 12 840 00	0 50 50 00	15 00 750 00	10 00 500 00	1 00 4,000 00	1,500 00	200 00
James J. Coughlan & Sons, Inc., 27 School St., Boston	95 00 28,500 00	40 00 14,000 00	0 17 1,190 00	1 00 100 00	35 00 1,750 00	25 00 1,250 00	1 20 4,800 00	1,500 00	1,000 00
Coleman Bros., Inc., 245 State St., Boston	90 00 27,000 00	40 00 14,000 00	0 10 700 00	0 80 80 00	15 00 750 00	8 00 400 00	1 25 5,000 00	500 00	1,000 00
C. & R. Construction Co., 75 Bradeen St., Roslindale	90 00 27,000 00	40 00 14,000 00	0 10 700 00	1 00 100 00	10 00 500 00	8 00 400 00	1 00 4,000 00	— 1,500 00	1,000 00
Simpson Bros. Corp., 77 Summer St., Boston	83 00 24,900 00	25 00 8,750 00	0 12 840 00	1 50 150 00	25 00 1,250 00	20 00 1,000 00	0 75 3,000 00	— 1,250 00	6,000 00
A. G. Tomasello & Son, Inc., 65 Devonshire St., Boston	100 00 30,000 00	30 00 10,500 00	0 10 700 00	1 00 100 00	35 00 1,750 00	20 00 1,000 00	0 75 3,000 00	— 8,000 00	15,000 00

BIDDERS AND ADDRESSES	m	n	2n	3n	4n	5n	6n	7n	8n
	Wall Finish Rubbing 1,200 Sq. Yds.	Conduit Lines 6 Duct 2,400 Lin. Ft.	Conduit Lines 5 Duct 200 Lin. Ft.	Conduit Lines 4 Duct 2,200 Lin. Ft.	Conduit Connections 1,000 Lin. Ft.	Power Manholes 8 M. H.	Signal Manhole 4 M. H.	Signal Manholes with Signal Foundations 7 M. H.	Signal Foundations 4 Fdn.
A. James Grande, 22 Hull St., Boston	$1 00 1,200 00	$3 00 7,200 00	$2 50 500 00	$2 50 5,500 00	$2 50 2,500 00	$300 00 2,400 00	$300 00 1,200 00	$400 00 2,800 00	$100 00 400 00
Reynolds Bros., Inc., 179 Summer St., Boston	1 50 1,800 00	3 00 7,200 00	3 00 600 00	2 75 6,050 00	3 00 3,000 00	500 00 4,000 00	400 00 1,600 00	500 00 3,500 00	100 00 400 00
Paul Caputo, 383 Hanover St., Boston	0 45 540 00	5 00 12,000 00	5 00 1,000 00	4 00 8,800 00	3 00 3,000 00	250 00 2,000 00	250 00 1,000 00	400 00 2,800 00	150 00 600 00
J. C. Coleman & Sons Co., 1020 Tremont St., Roxbury	0 75 900 00	2 75 6,600 00	2 75 550 00	2 75 6,050 00	2 75 2,750 00	200 00 1,600 00	150 00 600 00	225 00 1,575 00	75 00 300 00
M. F. Gaddis, 6 Beacon St., Boston	1 00 1,200 00	1 50 3,600 00	1 50 300 00	1 50 3,300 00	1 50 1,500 00	200 00 1,600 00	250 00 1,000 00	250 00 1,750 00	150 00 600 00
James J. Coughlan & Sons, Inc., 27 School St., Boston	0 90 1,080 00	2 25 5,400 00	2 20 440 00	2 10 4,620 00	2 00 2,000 00	300 00 2,400 00	275 00 1,100 00	400 00 2,800 00	200 00 800 00
Coleman Bros., Inc., 245 State St., Boston	0 80 960 00	1 50 3,600 00	3 50 700 00	1 25 2,750 00	1 50 1,500 00	200 00 1,600 00	200 00 800 00	225 00 1,575 00	75 00 300 00
C. & R. Construction Co., 75 Bradeen St., Roslindale	0 50 600 00	2 00 4,800 00	2 00 400 00	1 60 3,520 00	0 50 500 00	250 00 2,000 00	250 00 1,000 00	300 00 2,100 00	100 00 400 00
Simpson Bros. Corp., 77 Summer St., Boston	1 00 1,200 00	1 10 2,640 00	1 10 220 00	1 00 2,200 00	0 40 400 00	170 00 1,360 00	200 00 800 00	200 00 1,400 00	60 00 240 00
A. G. Tomasello & Son, Inc., 65 Devonshire St., Boston	2 00 2,400 00	2 00 4,800 00	1 50 300 00	1 00 2,200 00	1 00 1,000 00	200 00 1,600 00	200 00 800 00	200 00 1,400 00	50 00 200 00

BIDDERS AND ADDRESSES	p	2p	[illegible]	4p	r	[illegible]		
	Granite Block Pavement 300 Sq. Yds.	Granite Block Gutters 200 Sq. Yds.	Granite Edgestone 100 Lin. Ft.	Resetting Edgestone 100 Lin. Ft.	Preparing Site Lump Sum	Removing Track Work Lump Sum	Totals	[illegible] completion
A. James Grande, 22 Hull St., Boston	$5 00 1,500 00	$5 00 1,000 00	$2 00 200 00	$0 50 50 00	$3,000 00	$5,000 00	$372,410 00	150 Days
Reynolds Bros., Inc., 179 Summer St., Boston	5 00 1,500 00	4 00 800 00	2 50 250 00	1 50 150 00	2,500 00	5,000 00	342,460 00	
Paul Caputo, 383 Hanover St., Boston	5 00 1,500 00	5 00 1,000 00	3 75 375 00	1 50 150 00	2,000 00	5,000 00	342,235 00	[illegible] Days
J. C. Coleman & Sons Co., 1020 Tremont St., Roxbury	5 00 1,500 00	3 00 600 00	3 00 300 00	1 00 100 00	1,500 00	1,500 00	330,550 00	[illegible] Days
M. F. Gaddis, 6 Beacon St., Boston	5 50 1,650 00	5 50 1,100 00	2 00 200 00	1 00 100 00	10,000 00	2,000 00	325,910 00	[illegible] Days
James J. Coughlan & Sons, Inc., 27 School St., Boston	5 00 1,500 00	4 50 900 00	3 25 325 00	2 00 200 00	1,000 00	5,000 00	292,042 50	300 Days
Coleman Bros., Inc., 245 State St., Boston	5 00 1,500 00	5 00 1,000 00	2 00 200 00	0 50 50 00	100 00	1,400 00	290,785 00	120 Days
C. & R. Construction Co., 75 Bradeen St., Roslindale	5 00 1,500 00	3 00 600 00	2 00 200 00	1 00 100 00	500 00	4,000 00	272,970 00	190 Days
Simpson Bros. Corp., 77 Summer St., Boston	5 50 1,650 00	4 50 900 00	2 00 200 00	0 80 80 00	2,000 00	2,400 00	267,130 00	300 Days
A. G. Tomasello & Son, Inc., 65 Devonshire St., Boston	6 00 1,800 00	3 00 600 00	3 00 300 00	0 50 50 00	200 00	1,000 00	237,510 00	270 Days

Contract awarded to A. G. Tomasello & Son, Inc., August 18, 1926.

APPENDIX J.

Canvass of Bids for Section 3, Dorchester Rapid Transit, August 31, 1926

[illegible]	Earth Excavation 80,000 Cu Yds	Rock Excavation 5000 Cu Yds	[illegible] 1000 Cu Yds	Concrete 16,000 Cu Yds	2c Small Stone Concrete 200 Cu Yds	3c Cinder Concrete 50 Cu Yds	4c Mortar 500 Cu Yds	Concrete Finish 13,000 Sq Yds	Granolithic Finish 200 Sq Yds	Granolithic Walks 600 Sq Yds	8c Column Casings 900 Lin Ft	d Brick Masonry 150 Cu Yds	Vitrified Pipe 4"–6"–8" 1000 Lin Ft	2e Vitrified Pipe 10"–12" 2000 Lin Ft	3e Vitrified Pipe 15" to 24" 2000 Lin Ft	f Reinforcing Rods and other Steel and Iron 700 Tons	2f Structural Steel 750 Tons	3f Wire Cloth 55,000 Sq Ft	g Plaster 100 Sq Yds	2g Grout 1-1½ 50 Cu Yds	3g Grout 1-4 50 Cu Yds	h Waterproofing 65,000 Sq Yds	k Supporting Structures, Etc Lump Sum	m Wall Finish Rubbing 5,500 Sq Yds	n Conduit Lines 6 Duct 800 Lin Ft	2n Conduit Lines 4 Duct 800 Lin Ft	3n Conduit Connections 450 Lin Ft	4n Power Manholes 3 M H	5n Signal Manholes 1 M H	6n Signal Manholes with Signal Foundations 3 M H	7n Signal Foundations 1 F'd'n	p Granite Block Gutters 100 Sq Yds	2p Granite Edgestone 100 Lin Ft	3p Resetting Edgestone 100 Lin Ft	r Preparing Site Lump Sum	2r Removing Track Work Lump Sum	Total	Time of Completion
[illegible] Tomasello & Sons Co 88 Devonshire St, Boston	$3 75 300,000 00	$3 75 18,750 00	$4 00 4,000 00	$25 00 400,000 00	$25 00 5,000 00	$15 00 750 00	$30 00 15,000 00	$0 50 6,500 00	$1 50 300 00	$3 00 1,800 00	$5 00 4,500 00	$40 00 6,000 00	$1 00 1,000 00	$1 50 3,000 00	$3 00 6,000 00	$100 00 70,000 00	$40 00 30,000 00	$0 10 5,500 00	$1 00 100 00	$35 00 1,750 00	$20 00 1,000 00	$0 75 48,750 00	$100,000 00	$1 50 8,250 00	$2 00 1,600 00	$2 00 1,600 00	$2 00 900 00	$200 00 600 00	— $200 00	$200 00 600 00	$100 00	$5 00 500 00	$2 50 250 00	$1 00 100 00	$5,000 00	$20,000 00	$1,069,400 00	180 Days
Reynolds Bros Inc 179 Summer St, Boston	3 00 240,000 00	10 00 50,000 00	8 00 8,000 00	19 00 304,000 00	30 00 6,000 00	15 00 750 00	32 00 16,000 00	0 50 6,500 00	1 25 250 00	3 50 2,100 00	3 00 2,700 00	40 00 6,000 00	0 60 600 00	1 00 2,000 00	1 50 3,000 00	90 00 63,000 00	35 00 26,250 00	0 25 13,750 00	0 80 80 00	35 00 1,750 00	30 00 1,500 00	0 75 48,750 00	15,000 00	1 00 5,500 00	[illegible] [illegible]	2 75 2,200 00	2 00 900 00	400 00 1,200 00	— 400 00	500 00 1,500 00	100 00	4 00 400 00	1 00 100 00	1 50 150 00	10,000 00	10,000 00	852,[illegible] 00	400 Days
[illegible] Bros Brighton	2 00 160,000 00	8 00 40,000 00	5 00 5,000 00	20 00 320,000 00	20 00 4,000 00	15 00 750 00	22 00 11,000 00	1 00 13,000 00	1 00 200 00	3 50 2,100 00	1 00 900 00	45 00 6,750 00	1 00 1,000 00	0 50 1,000 00	3 00 6,000 00	110 00 77,000 00	35 00 26,250 00	0 20 11,000 00	1 50 150 00	25 00 1,250 00	20 00 1,000 00	1 00 65,000 00	40,000 00	1 00 5,500 00	2 00 1,600 00	1 50 1,200 00	1 00 450 00	200 00 600 00	200 00	200 00 600 00	25 00	2 00 200 00	1 00 100 00	1 00 100 00	500 00	2,500 00	700,125 00	675 Days
[illegible] Stuart & Sons Co [illegible] Pearl St, Boston	2 75 220,000 00	4 00 20,000 00	1 00 1,000 00	20 00 320,000 00	23 00 4,600 00	12 00 600 00	18 00 9,000 00	0 50 6,500 00	1 50 300 00	3 50 2,100 00	3 50 3,150 00	35 00 5,250 00	1 00 1,000 00	0 50 1,000 00	3 00 6,000 00	100 00 70,000 00	13 00 9,750 00	0 10 5,500 00	1 50 150 00	25 00 1,250 00	20 00 1,000 00	0 75 48,750 00	10,000 00	1 00 5,500 00	2 00 1,600 00	1 75 1,400 00	1 50 675 00	400 00 1,200 00	350 00	400 00 1,200 00	125 00	4 50 450 00	3 00 300 00	1 00 100 00	15,000 00	10,000 00	768,400 00	500 Days
[illegible] Bros Inc [illegible] State St, Boston	1 00 80,000 00	5 00 25,000 00	7 00 7,000 00	17 00 272,000 00	20 00 4,000 00	10 00 500 00	21 00 10,500 00	0 20 2,600 00	1 00 200 00	2 80 1,680 00	2 00 1,800 00	35 00 5,250 00	0 75 750 00	1 00 2,000 00	2 50 5,000 00	90 00 63,000 00	30 00 22,500 00	0 10 5,500 00	0 80 80 00	15 00 750 00	10 00 500 00	0 60 39,000 00	5,000 00	0 70 3,850 00	1 50 1,200 00	1 25 1,000 00	1 00 450 00	200 00 600 00	200 00	225 00 675 00	75 00	5 00 500 00	2 00 200 00	0 50 50 00	500 00	4,000 00	785,910 00	300 Days
M. F. Gaddis 6 Beacon St, Boston	2 00 160,000 00	5 00 25,000 00	1 00 1,000 00	19 00 304,000 00	20 00 4,000 00	15 00 750 00	25 00 12,500 00	0 50 6,500 00	1 50 300 00	4 00 2,400 00	2 00 1,800 00	45 00 6,750 00	0 80 800 00	1 00 2,000 00	2 50 5,000 00	90 00 63,000 00	30 00 22,500 00	0 15 8,250 00	0 50 50 00	20 00 1,000 00	10 00 500 00	0 65 42,250 00	10,000 00	1 00 5,500 00	1 50 1,200 00	1 50 1,200 00	2 00 900 00	300 00 900 00	300 00	300 00 900 00	100 00	5 00 500 00	5 00 500 00	2 00 200 00	1,000 00	2,000 00	760,610 00	420 Days
James J. Coughlan & Sons [illegible] 27 School St, Boston	2 30 184,000 00	5 00 25,000 00	4 00 4,000 00	16 50 264,000 00	22 00 4,400 00	10 00 500 00	15 00 7,500 00	0 10 1,300 00	1 50 300 00	3 00 1,800 00	3 75 3,375 00	45 00 6,750 00	0 70 700 00	1 00 2,000 00	3 00 6,000 00	95 00 66,500 00	15 00 11,250 00	0 10 5,500 00	0 60 60 00	30 00 1,500 00	20 00 1,000 00	1 62 105,300 00	2,000 00	0 50 2,750 00	1 60 1,280 00	1 50 1,200 00	1 00 450 00	250 00 750 00	250 00	300 00 900 00	100 00	4 50 450 00	2 00 200 00	1 00 100 00	400 00	20,000 00	714,695 00	575 Days
Simpson Bros Corp 77 Summer St, Boston	2 20 176,000 00	4 80 24,000 00	5 00 5,000 00	18 70 299,200 00	21 00 4,200 00	12 00 600 00	16 00 8,000 00	0 70 9,100 00	2 00 400 00	3 50 2,100 00	6 00 5,400 00	45 00 6,750 00	1 00 1,000 00	1 50 3,000 00	3 50 7,000 00	85 00 59,500 00	26 00 19,500 00	0 10 5,500 00	1 50 150 00	25 00 1,250 00	20 00 1,000 00	0 70 45,500 00	6,000 00	0 80 4,400 00	2 20 1,760 00	2 00 1,600 00	1 10 495 00	200 00 600 00	— 180 00	250 00 750 00	80 00	4 50 450 00	2 50 250 00	0 90 90 00	1,800 00	6,000 00	708,605 00	700 Days
James H. Fannon 11 Powder House Terrace, Somerville	2 00 160,000 00	2 00 10,000 00	5 00 5,000 00	17 00 272,000 00	25 00 5,000 00	12 00 600 00	20 00 10,000 00	0 75 9,750 00	1 25 250 00	3 00 1,800 00	3 00 2,700 00	40 00 6,000 00	0 80 800 00	1 25 2,500 00	3 00 6,000 00	90 00 63,000 00	30 00 22,500 00	0 10 5,500 00	0 75 75 00	25 00 1,250 00	18 00 900 00	0 75 48,750 00	2,000 00	0 50 2,750 00	2 00 1,600 00	1 60 1,280 00	1 50 675 00	200 00 600 00	— 200 00	200 00 600 00	75 00	5 00 500 00	2 00 200 00	1 00 100 00	2,000 00	15,000 00	661,957 00	400 Days
[illegible] Coleman & Sons [illegible] [illegible] Tremont St, Boston	1 40 112,000 00	5 00 25,000 00	4 00 4,000 00	17 50 280,000 00	20 00 4,000 00	15 00 750 00	20 00 10,000 00	0 25 3,250 00	2 00 400 00	3 00 1,800 00	2 00 1,800 00	35 00 5,250 00	1 50 1,500 00	2 50 5,000 00	4 00 8,000 00	90 00 63,000 00	25 00 18,750 00	0 15 8,250 00	1 50 150 00	25 00 1,250 00	20 00 1,000 00	0 70 45,500 00	30,000 00	0 50 2,750 00	2 00 1,600 00	1 75 1,400 00	1 50 675 00	175 00 525 00	— 155 00	230 00 690 00	75 00	3 00 300 00	2 75 275 00	1 00 100 00	1,500 00	10,000 00	650,695 00	400 Days
C & R Construction Co 75 Bradeen St, Roslindale	1 00 80,000 00	3 00 15,000 00	2 00 2,000 00	20 00 320,000 00	22 00 4,400 00	10 00 500 00	18 00 9,000 00	0 10 1,300 00	1 00 200 00	3 00 1,800 00	5 00 4,500 00	35 00 5,250 00	1 00 1,000 00	1 00 2,000 00	3 00 6,000 00	90 00 63,000 00	30 00 22,500 00	0 10 5,500 00	1 00 100 00	20 00 1,000 00	8 00 400 00	0 60 39,000 00	15,000 00	0 90 4,950 00	1 50 1,200 00	1 00 800 00	1 00 450 00	200 00 600 00	— 200 00	250 00 750 00	50 00	3 00 300 00	2 00 200 00	1 00 100 00	5,500 00	12,000 00	620,550 00	300 Days

Contract awarded to C & R Construction Co, August 31, 1926

APPENDIX K.

BIDS FOR BUILDING ENTRANCE–EXIT BUILDING AND ADJUNCTS, COLUMBIA STATION, SECTION 1, DORCHESTER RAPID TRANSIT. SEPTEMBER 14, 1926.

BIDDER.	Price.	Time.
John Bowen Co	$53,815	Not stated
J. P. Foley & Sons *	43,929	125 days

* Awarded. Contract 806.

APPENDIX L.

BIDS FOR RELAYING GRANITE BLOCK PAVEMENT IN BOSTON STREET NEAR RALSTON STREET, DORCHESTER TUNNEL, SECTION K. SEPTEMBER 21, 1926.

BIDDER.	Estimated Price.	Time.
Samuel J. Tomasello	$4,240.00	30 days
J. J. McCarthy & Co	4,080.50	30 "
A. DeStefano & Son, Inc	3,578.00	24 "
John McCourt Co.*	3,462.50	30 "

* Awarded. Contract 807.

APPENDIX M.

BIDS FOR CONSTRUCTING SUB–STATION BUILDING AT HARRISON SQUARE, DORCHESTER RAPID TRANSIT. OCTOBER 5, 1926.

BIDDER.	Price.	Time.
A. Piotti Company	$27,861.00	120 days
J. P. Foley & Sons	26,940.00	125 "
A. G. Tomasello & Son, Inc	24,850.00	100 "
John Bowen Co	23,038.00	60 "
Simpson Bros. Corporation	22,700.00	80 "
J. C. Coleman & Sons Co	22,500.00	100 "
Joseph Slotnik	22,484.00	120 "
Coleman Bros., Inc	22,000.00	90 "
J. F. Fitzgerald Construction Co	20,808.00	70 "
Thomas Mulcare, Inc	19,680.00	120 "
M. S. Kelliher Co	19,016.00	89 "
John B. Dolan	17,998.00	Not stated
John P. Curley *	17,830.00	90 days

* Awarded. Contract 808.

APPENDIX N.

BIDS FOR EARTH AND ROCK EXCAVATION AND FOR GRADING, CODMAN STREET YARD, DORCHESTER RAPID TRANSIT. NOVEMBER 9, 1926.

BIDDER.	Estimated Price.	Time.
McCabe & Giovannini	$37,300.00	65 days
C. & R. Construction Co	35,000.00	300 "
Reynolds Bros., Inc	30,000.00	90 "
M. F. Gaddis	27,500.00	200 "
A. G. Tomasello & Son, Inc	27,000.00	100 "
James J. Coughlan & Sons Co	24,250.00	90 "
J. C. Coleman & Sons Co.*	21,500.00	60 "

* Awarded. Contract 810.

APPENDIX O.

BIDS FOR FURNISHING LEAD COVERED INSULATED CABLE AND SOFT DRAWN COPPER WIRE. DECEMBER 7, 1926.

BIDDER.	Estimated Price.
For Lead Covered Cable Only	
Pettingell Andrews Co	$77,147.55
Hazard Manufacturing Co	71,720.90
Simplex Wire & Cable Co	70,794.00
For Lead Covered Cable and Soft Drawn Copper Wire.	
American Steel & Wire Co.*	90,194.46
Standard Underground Cable Co.**	90,801.55
Safety Cable Co	93,378.00

* Awarded. Contract 813. Lead Covered Cable. $69,431.50.
** Awarded. Contract 814. Soft Drawn Copper Wire. $20,966.

APPENDIX P.

BIDS FOR FURNISHING AND DELIVERING F. O. B. DOCK OR CARS, SOUTH BOSTON, 91,000 FEET, B. M., HARD PINE LUMBER AND 919,000 FEET B. M., HARD PINE SAWN TIES. DECEMBER 15, 1926.

BIDDER.	Estimated Price.	Delivery by
Putnam Lumber Co	$47,068.07	April 1, 1927
Leatherbee Company	46,458.60	60 days
Geo. McQuesten Company *	41,451.74	90 days

* Awarded. Contract 812.

APPENDIX Q.

BIDS FOR FURNISHING AND DELIVERING 730 TONS, MORE OR LESS, OF OPEN HEARTH STEEL RAILS AND 1,383 TONS, MORE OR LESS, OF OPEN HEARTH FERRO TITANIUM STEEL RAILS. DECEMBER 15, 1926.

BIDDER.	Estimated Price.	Delivery.
Bethlehem Steel Co.	$120,346.68	Sept. 1, 1927
Bethlehem Steel Co.* Alternate	115,217.24	1, 1927

* Awarded. Contract 822.

APPENDIX R.

BIDS FOR FURNISHING AND DELIVERING 190 TONS, MORE OR LESS, OF STRUCTURAL STEEL. DECEMBER 21, 1926.

BIDDER.	Estimated Price.	Delivery.
Bethlehem Steel Company *	$9,536.97	45 to 60 days

*Awarded. Contract 815.

APPENDIX S.

BIDS FOR FURNISHING ABOUT 367,400 POUNDS OF ROLLED STEEL. DECEMBER 21, 1926.

BIDDER.	Estimated Price.
Bethlehem Steel Co.*	11 items $11,543.08
Dillworth, Porter & Co., Inc.**	3 items 6,453.62

* Awarded. Contract 816. 9 items. ** Awarded. Contract 817. 3 items.

APPENDIX T.

FOR FURNISHING AND DELIVERING ABOUT 16,000 TRACK BOLTS AND ABOUT 17,200 MACHINE BOLTS, ALL WITH O. K. NUTLOCKS. DECEMBER 21, 1926.

BIDDER.	Price.
Lorain Steel Company *	$5,855.16

* Awarded. Contract 818.

APPENDIX U.

BIDS FOR FURNISHING AND DELIVERING ABOUT 449,200 POUNDS OF MALLEABLE IRON CASTINGS, AND ABOUT 95,800 POUNDS OF GALVANIZED MALLEABLE IRON CASTINGS. DECEMBER 21, 1926.

BIDDER.	Estimated Price.
Bethlehem Steel Company	$69,232.00
Eastern Malleable Iron Co	38,646.00
Albany Malleable Iron Co.*	33,225.82
Laconia Car Co	one item 35,486.80

* Awarded. Contract 819.

APPENDIX V.

BIDS FOR FURNISHING AND DELIVERING STEEL DROP FORGINGS, ABOUT 78,800 RAIL CLIPS AND ABOUT 157,200 POUNDS OF SCREW SPIKES. DECEMBER 21, 1926.

BIDDER.	Estimated Price.
Bethlehem Steel Company **	$21,512.00
Lorain Steel Company	12,803.00 Three items only
Storms Drop Forging Company *	18,341.00

* Awarded. Contract 820. Rail Clips. ** Awarded. Contract 821. Screw spikes.